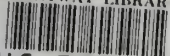
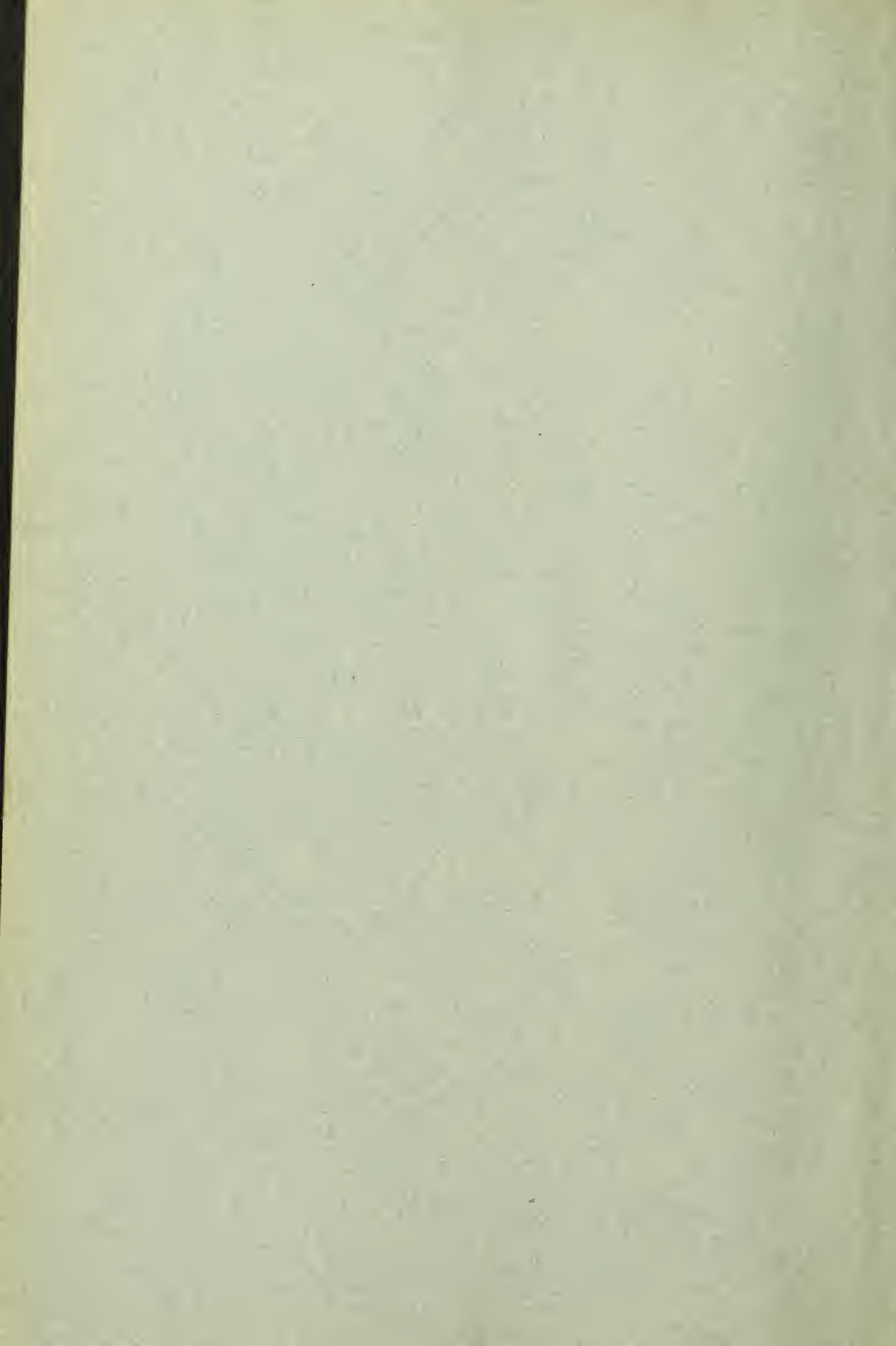


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THE JOURNAL

of the

Missouri State Medical Association

The Official Organ of the State Association and Component Societies
Issued Monthly Under Direction of the Publication Committee

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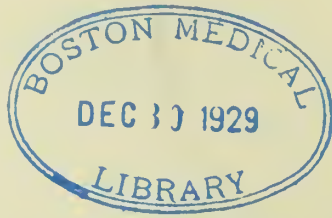
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INDEX TO VOLUME XXVI
JANUARY, 1929, to DECEMBER, 1929



THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

JANUARY, 1929

NUMBER 1

E. J. GOODWIN, M.D., EDITOR
901 Missouri Building, St. Louis, Mo.

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ORIGINAL ARTICLES

SYMPOSIUM ON ARTHRITIDES

INFECTION AS A FACTOR IN ARTHRITIS*

RUSSELL L. HADEN, M.D.

KANSAS CITY, MO.

The possible relation of distant infection to joint disease has been recognized for centuries. C. H. Mayo and Dixon state that in the records of one of Hippocrates' cases mention is made of a patient suffering from a joint trouble who improved greatly following the "freeing of the mouth of much disease." Benjamin Rush, over a century ago, in reporting cases of systemic disease due to dental infection, mentions a patient with arthritis of the hip who was relieved by the extraction of a tooth. Only in the past twenty-five years, however, has the great importance of chronic localized infection in the causation of arthritis been appreciated.

In attempting to evaluate infection as a factor in arthritis, some classification of arthritis is necessary as a basis for discussion. Many classifications have been proposed yet none is entirely satisfactory. The simplest possible one will be used here. Acute arthritis will be discussed as a separate group. The chronic arthritis will be divided into atrophic and hypertrophic types. The relatively uncommon and usually evident types of joint disease, such as Charcot joint and the joint disease of hemophilia and neuropathic disorders, need not be considered.

Nearly all cases of acute arthritis are due to microorganisms. Outstanding exceptions are the acute arthritis of serum disease and acute gout in which the joint symptoms are seemingly entirely chemical in origin. A few of the acute joint infections are due to a specific infection such as the gonococcus. Acute rheumatic fever is probably a clinical entity due to a specific microorganism of the streptococcus group.

The great majority of cases of acute joint disease are due to different types of nonhemolytic streptococci in foci of infection, which affect the joint by way of the blood stream.

Concerning the role of infection in chronic arthritis, there is much less unanimity of opinion. In some cases, such as gout, infection can seemingly be definitely excluded as a factor. In other types of chronic arthritis the possible role of infection must be considered. Occasionally, as in the relatively infrequent cases of chronic gonorrheal arthritis, the activity of microorganisms is apparent; in others, infection is not so apparent. Infection is certainly a frequent precipitating factor in atrophic arthritis. This type is characterized by an atrophy of bone due to increased loss of lime salts and by a proliferation of the synovial membrane and the soft tissues around the joint, and corresponds to the proliferative arthritis of Nichols and Richardson.

In many instances, perhaps in the majority, the causative organisms are not localized in the joint. The joint changes represent the reaction of the tissues to a circulating poison usually of microbic origin. While infection is a common inciting factor in atrophic arthritis, one must keep in mind that the same pathologic picture may be produced in other ways, such as gastro-intestinal disturbances and metabolic disorders.

Hypertrophic arthritis is probably a different story from the standpoint of etiology. This type of joint disturbance is principally a degenerative disease and corresponds to the degenerative arthritis of Nichols and Richardson. The characteristic change around the joint is the hypertrophy of bone usually seen as a "flipping" of the joint margin. Here also the joint changes represent a reaction to an abnormal stimulus. It is the consensus of opinion that infection plays little immediate part in the production of such joint changes. This type of arthritis represents essentially a degenerative process similar to arteriosclerosis. It is of course possible to have an infection in a joint which is already the seat of degeneration but this probably happens only rarely. It is also possible that infection may, through some in-

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

fluence on the body metabolism, be the distant cause of a degenerative process.

One reaches the conclusion then that practically all cases of acute arthritis are due to infection. Unless there is some evident chemical reason, such as serum disease or a disorder such as hemophilia, one should not rest content in treating a case of acute arthritis until the infection is found and properly cared for.

In atrophic chronic arthritis treatment should be begun on the assumption that the inciting cause is a chronic localized infection harboring the streptococcus. In hypertrophic arthritis evident foci should also be removed on general principles rather than with the idea that the joint condition will be much influenced by such removal. Treatment should be directed specifically in directions other than infection.

Having determined that the arthritis is of infectious origin, the problem at once arises as to where the causative infection is located. Theoretically, a focus may exist in any part of the body in which a localized area of infection may persist under pressure. From a practical standpoint only teeth, the tonsils, the sinuses, the gastro-intestinal tract, the prostate and seminal vesicles, and the female generative organs need be considered. The first three are very common and the last three relatively infrequent sources of infection. Acute rheumatic fever probably almost always arises from an infection in lymphadenoid tissue. Other types of acute arthritis may arise from any focus. In young individuals, the tonsils should be kept foremost in mind in searching for foci; in older individuals the teeth play a larger part. The teeth are certainly the most frequent focus for chronic atrophic arthritis. In any case due to a chronic focal infection, all possible foci should be removed. Often multiplicity of foci is an important factor. The arthritis may represent the result of a summation of chronic infections rather than the result of a single one.

In discussing the role of infection in the production of arthritis, emphasis should be laid on the principle that the arthritis represents the result of interaction of focus and patient. Many patients harbor chronic localized infections without developing arthritis or other systemic disease. The determining factor is often the degree of resistance or the occurrence of other predisposing conditions. In studying a patient with arthritis, one needs to consider him as a whole, evaluating every factor of infection and resistance and attempting to determine the relative importance of each. The correct evaluation of the factor of resistance materially influences the prognosis. Given two patients with a chronic atrophic arthritis of equal intensity, a better clinical result is to be expected

from the removal of a virulent focus in an individual with good resistance than from the removal of a mild infection in an individual with low resistance.

In conclusion I would emphasize the necessity for a classification of the different cases of arthritis and an attempt at an evaluation of infection as a factor in each type.

Infection is the immediate factor in most cases of acute arthritis.

Chronic atrophic arthritis is most frequently a manifestation of infection. The same clinical picture may result from other causes.

Chronic hypertrophic arthritis is seldom due to infection. In this group, definite foci should be removed on general principles rather than with the idea that the arthritis will be influenced thereby.

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SYPHILIS AS A CAUSE OF ARTHRITIS*

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In the past few years arthritis has been actively studied. The work done on focal infection has been a great stimulus and has resulted in advancing our knowledge of the cause of arthritis in a large percentage of cases. Perhaps this has resulted in less endeavor along other lines of investigation as to causative agents in this condition.

Syphilitic arthritis apparently was recognized and described in the Middle Ages but was later forgotten. John Hunter, writing in 1786, says nothing about the condition though he remarks that "mercury cures rheumatism." In 1817 Sir James Russel recognized syphilis as a cause of arthritis; Richet differentiated it from scrofula in 1853, and Cluttons' classical paper was presented in 1886. Since then much has been written and many cases reported. In going over the literature, however, it is very evident that great confusion exists on the incidence of syphilis as a cause of arthritis; and the statistics are quite unreliable for the reason that cases of syphilis with arthritis have not been differentiated from cases of syphilitic arthritis.

A few years ago many cases of arthritis were thought to be of syphilitic origin and were so classified and treated. The diagnosis was made by X-ray and symptomatic relief obtained by treatment rather than by positive proof. At the present time it is generally agreed that

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

there are no characteristic findings revealed by X-ray of syphilis of the joints except in Charcot joints. However, it is believed that hydrops of the knee associated with periostitis of the adjacent bones is strongly suggestive of syphilis. It is interesting to note that rarely does the roentgenologist report that his findings suggest the probability of syphilis being the causative factor in any joint change. The decrease in the number of cases diagnosed as syphilitic arthritis is due to the fact that it is very difficult to prove syphilis of the joints and the comparatively small number of chronic cases improved by treatment.

The European literature at the present time contains many articles on syphilis as a cause of arthritis. Todd¹ formulates a number of clinical aphorisms such as, bilateral painless hydrops of the knees in children is due to syphilis; never diagnose rheumatism in any form until syphilis has been excluded as a possibility in the diagnosis; never diagnose tuberculosis or any other form of arthritis until you have excluded syphilis. His most important conclusion is a plea for a Wassermann reaction and cytological examination of the joint fluid and a blood Wassermann on every case of arthritis. Therefore the impression is gained that both on the Continent and in Great Britain there are many cases diagnosed tuberculosis that may be syphilis of the joints. However, they seem to rely upon the Wassermann and improvement by treatment as a means of diagnosing syphilitic arthritis. This is what has caused all the confusion. It is not scientific to say, when an arthritis is benefited by antileptic treatment, that the arthritis is of syphilitic origin. It is well known that any form of arthritis is improved when the general condition is improved, and it is also well known that potassium iodid and mercury are good constructive alternatives and are of value in any chronic disease. The incidence of a positive Wassermann reaction is in my opinion less in arthritic patients than in any other group of patients. I have watched this very carefully for a number of years at the Veterans' Hospital in Kansas City and while the figures are not as yet available I am sure that such is the case.

Evidently then it is quite difficult to make a positive diagnosis of syphilitic arthritis. This statement is, I think proven by the work of Chesney, Kemp, and Baetjer² in a recent article who report that in only 3 of 10 cases known to have syphilis that they studied were they able to isolate the *Treponema pallidum*. These 3 cases presented polyarthritis of moderate severity and were in the early stage of the syphilitic infection. In one case the onset of

the joint symptoms preceded the rash by 5 weeks. In two other cases the arthritis was improved by antispecific treatment but the joint fluid was entirely negative. The remaining 5 cases, 2 being Charcot joints, were not improved by treatment. Their cytological study of the joint fluid suggested the possibility that the relative high percentage of lymphocytes and mononuclear cells might prove to be a constant finding and help to differentiate it from other types of acute and subacute polyarthritis.

It seems to be quite generally agreed that congenital syphilis often produces arthritis. Usually, however, the arthritis is associated with other manifestations. For example, O'Reilly³ states that "in congenital syphilis as in acquired syphilis the joint changes are as a rule secondary to bone syphilis in their neighborhood, but in the milder cases may be a simple serous hydrarthrosis."

Foot⁴ states that "in congenital syphilis changes in the joints are always secondary to syphilitic osteochondritis," and thinks the condition quite common in children and usually the arthritis is associated with osteitis.

The writer has had no experience with attempts to isolate the *Treponema pallidum*. However, biopsies on knees have been done on 6 cases that were known to have syphilis, 2 congenital and 4 acquired. The laboratory reported the tissue in none of these cases as being syphilitic. In 2 of the 6 cases the Wassermann report on the fluid was positive. Only 1 case was improved by treatment. This case had a positive Wassermann of the joint fluid. All of these cases should be classed as late, being of more than two years' duration. Four cases of multiple arthritis have been relieved by antisiphilitic treatment, all of them being in the early stage of the disease. Each of these cases presented negative joint findings except for fluid and all had involvement of the sternoclavicular joint. It should be stated that they all presented more the picture of subacute syphilis than that of arthritis and no biopsies were done.

What then is the status of syphilitic arthritis at the present time? My conclusions are as follows:

CONCLUSIONS

1. That Charcot joints are very definite entities and are well known.
2. That arthritis in congenital syphilis is not uncommon and is usually associated with other manifestations, such as bone lesions, and is relieved by treatment; therefore it is most important to diagnose the condition.
3. That acquired syphilis in the early stages occasionally produces an arthritis affecting the

sternoclavicular and knee joints most commonly and the condition is relieved by treatment, therefore this condition should always be considered.

4. In late syphilitic arthritis in which it is difficult to establish the diagnosis, treatment is often disappointing just as it is in any late arthritis.

5. That syphilitic arthritis is not very common and the diagnosis cannot positively be established without the manifestation of syphilis in the bones as well as elsewhere in the body.

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THE RADIOLOGICAL ASPECTS OF ARTHRITIS*

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ST. LOUIS

The radiological aspects of the arthritides should be approached from the standpoint of painful and disabling affections of the locomotory apparatus in general, rather than as a separate subject. In the X-ray laboratory it seems that affections of this nature exceed in number those of any other cause for which X-ray examination is desired. To the radiologist it appears that painful and in some degree disabling conditions of the bones, joints, fascia, muscles, nerves, etc., are a greater source of morbidity than any single group with which the medical profession has to deal. Especially when it is borne in mind that patients complaining of these conditions are subject to remissions of their symptoms, that the latter are often temporary, and that many never apply for medical advice, it certainly appears that numerically this group of cases comprises one of the largest sources of morbidity. In spite of the fact that in those subject to these conditions (the arthritides are included) death rarely occurs and complete disability is

tain a better understanding in regard to their etiology, pathogenesis, pathology, and treatment.

Excluding joint affections immediately following upon trauma, there are a great number of such conditions which are not arthritis and probably even are not joint conditions at all but simulate them so closely that there is occasion to have radiological examination. It is doubtful whether arthritis is suspected in the majority of such cases coming to an X-ray laboratory. In the X-ray examination of 10,509 patients, the tentative diagnosis accompanying the patients was some form of arthritis in approximately 4.5 per cent. A far greater percentage came to the laboratory for painful affections other than arthritis.

Arthritis has been written about as long as there has been medical literature. Its general aspects are so well covered in the latest literature on the subject by McRae,¹ Pemberton,² Nichols and Richardson,³ Osgood,⁴ Swaim,⁵ Painter⁶ and Ely,⁷ that but slight reference need be made to it here.

Pemberton quotes Osborn to the effect that paleolithic man exhibits in his skeleton bone changes which we know today accompany arthritis. Paleopathology gives good grounds for believing that some types of arthritis probably antedated the human race. In spite of their long history these diseases are yet much of a mystery. When one attempts to approach the subject from the standpoint of a highly specialized diagnostic branch, the difficulties in the way of presenting any original views or new information of value are almost insuperable. One of the greatest drawbacks to accomplishing this need is the lack of a satisfactory classification, the misuse of synonymous terms, and the confusion of arthritis with other affections of the locomotory apparatus.

Some idea of the incidence of arthritis, in the inclusive sense of the term, can be gathered from the figures in Table 1.

These figures are for unclassified arthritis. Acute rheumatic fever, tuberculous disease of joints, gout, neurogenic arthropathy, acute traumatic affections of the joints, hemophilic joints, are omitted from these figures.

Table 1. *Unclassified Arthritis*

Institution	No. of Years	Total Admissions	Cases of Arthritis	Per Cent. Arthritis	Primary Arthritis	Per Cent. Primary Arthritis
Barnes Hospital	14	26,689	2,558	9.58	858	3.21
Children's Hospital	14	32,062	175	.54	77	.24
Washington University Dispensary	14	222,667	3,699	1.66		
Washington University X-ray Dept.	18	100,000	2,641	2.8		

relatively rare, this subject unquestionably merits the best efforts of the profession to at-

As the X-ray aspects of the arthritides necessitate some kind of classification reference will be made to some of those advanced by the writers cited above. In general, reading the litera-

* Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

ture of arthritis leads one to believe that the classification to which it is submitted varies with the medical activity of the classifier. One gains the distinct impression that there are three viewpoints: that of the internist (and pathologist), that of the orthopedic surgeon, and that of the radiologist. The two latter tend to approximate each other. Except in the case of the radiologist, the classification is more or less based on a composite of the etiological, pathological, and symptomatic foundation. The radiological classification should be confined to objective observations only.

Nichols and Richardson,² in their notable study which has largely a pathological basis find two types of arthritis: the proliferative and the degenerative. From the pathological standpoint this would be extremely desirable and has the great merit of simplicity, but on close analysis of their study one is led to believe that this simple classification is not applicable to all forms of those conditions covered by the general term arthritis. Furthermore, there is the impression that the material on which they base their study was gathered too greatly from the late manifestations of arthritis. They include at least one class of cases which, on etiological, pathological, and certainly radiological grounds, should be excluded, i. e., neurogenic arthropathy (Charcot's joint).

Ely⁷ has reduced arthritis to two great types in which he would fit all cases. His classifications seem to rest almost exclusively on changes observed on X-ray examination. They are an arthritis without bone proliferation and one which presents that change.

Painter⁶ considers there are three types of arthritis, and this conforms to the views of Swaim,⁵ Goldthwait, Painter, and Osgood.⁸ Baetjer and Waters,⁹ on the radiological basis, approximate the same classification. This classification is the following: Infectious arthritis, atrophic arthritis, and hypertrophic arthritis. Tuberculosis of the joints, gout, neurogenic arthropathy, and pyogenic infection of joints are excluded. Infectious arthritis includes both those cases with a definite infective agent present, as typified by gonorrheal arthritis, and the arthritis accompanying or following definite infections. Atrophic arthritis (rheumatoid arthritis) is considered as a separate entity, with an as yet unknown etiological factor; and the hypertrophic form is viewed in the same light except that it is thought of either as due to some metabolic disturbance or as incidental to old age.

As has been stated, radiological classification of arthritis is, or should be, based on objective

findings. These are changes in the bones themselves and, of far less importance, changes in the soft tissues. The latter are observed as increased thickening or density of the soft tissues about the affected joint, but they are difficult of demonstration and are inconstant in occurrence. The bone changes are observed as changes in the bones themselves, through variations in density, bone proliferation, loss of substance, bony overgrowth, and altered relations of bones. Any or all of these changes may be lacking in arthritis, and it is to be borne in mind that it takes considerable time for them to become manifest. Changes in the bones result from quantitative alterations in the calcium and other salts which are present in them. Bearing in mind that any disabling affection of a joint bringing about inactivity of the part produces some change in the amount of dense material in the bone, it is to be demonstrated that textural variations exceed those to be found incidental to physiological inactivity. These textural changes are atrophy and eburnation. The relationships of the bones also may alter. There may be various degrees of luxation from muscular spasm, softening of ligament, and perhaps from hypertrophic changes, and an increase in malleability from softening. A factor influencing the relationship of bones is the condition of the cartilage in the so-called inter-articular spaces. This may atrophy and disappear in part or in toto. Many writers refer to the X-ray appearance of this cartilage and speak of it as if it were actually visualized by X-ray methods. This, of course, never occurs, and what is meant is that loss of cartilage is inferred because of approximation of the articulating bones. Loss of substance may follow on the foregoing and is confined to the articulating aspect. Bone proliferation, the so-called hypertrophic change, is usually manifest as an overgrowth of bone at the margins of the articular aspect. Bone defects laterally and slightly separated from the articulating aspect are usually not an accompaniment of arthritis.

For the past several years in the X-ray department of the Barnes Hospital the X-ray classification of painful joints has been based on the foregoing general principles. This has resulted in the exclusion from the arthritides of gout, neurogenic arthropathy, joint tuberculosis, acute traumatic affections of the joints, and osteomyelitic extension of joints, and painful conditions lacking X-ray findings. A word as to this exclusion.

In its late stages, gout presents X-ray findings which are characteristic and are not to be confused with those of the known cases of arthritis. Moreover, gout is a disease of

metabolism and should be so excluded. Further, it is true that it may have as an accompaniment the manifestations and even the X-ray changes found in all three types of arthritis. It is to be mentioned at this point that Vanzant,¹⁰ of the Mayo Clinic, in his studies on arthritis is finding many of the latter to be true cases of gout.

Neurogenic arthropathy, because of its radiological findings which greatly differ from all other affections of the joints, should be excluded, even were there no etiological basis for so doing.

Tuberculous joint affections are excluded because in the majority of instances the changes which are found radiographically differ from those observed in the other arthritides, and further, because the writer, with many others, believes them to originate as tuberculosis of bone, the involvement of the joint structures proper being secondary.

Extension of pyogenic infection to a joint and its acute traumatic involvement require no mention. Posttraumatic conditions which alter the bearing surfaces of a joint can precipitate symptoms in joints both proximal and distal to the one originally involved, bring about the symptoms and oftentimes the findings of an arthritis. The writer has known of a case of fracture of the odontoid process of the atlas with forward dislocation of the head, in which a poker spine was produced, and in this connection we have classified as secondary arthritis the joint changes observed as a later sequel of trauma or infection. We believe these to be the results of disturbance of the statics of the part.

Our classification of the arthritides, strictly speaking, is the infectious, the atrophic, and the hypertrophic. A majority of patients with arthritis who are examined in an X-ray laboratory will fall into one or the other of these three groups.

The X-ray findings in infectious arthritis are more uncertain than in the other two classes. They will show in suitable locations and conditions, thickening of the soft tissues, increase in size of the interarticular spaces and generalized haziness of all the joint structures, preservation of the plate of cortical bone covering the articulating aspect of the bone, no loss of substance, and a degree of atrophy of all bones entering the joint, which is commensurate with the duration and severity of the disability.

In atrophic arthritis the most striking thing observed is the rarefaction of the bone. This would seem to be a true halisteresis, and far exceeds bone *atrophy* to be attributed to disuse, and it is more evident in the cancellous ex-

trémities of the bones. The interarticular spaces are narrow, and this is a progressive change which may lead to actual bony approximation and later ankylosis. There is little or no proliferative change about the margins of such bones. There is some soft tissue swelling, which has not an increased density, but this is not so pronounced as that observed in an infectious arthritis. There is likely to be some degree of luxation which is in the direction of the greatest force applied on the bones entering into the joint. In the late cases there may be an accompanying new bone proliferation but it will lack density.

The hypertrophic form is chiefly characterized by overgrowth of bone along the articulating margins. There is relatively little or no bone atrophy; on the contrary, there is frequently increased bone density in the parts nearest the joint. Frequently change in the shape of the articulating end of the bone is apparent and what seems to be an increased plasticity. These may alter the general conformation of the joint. It is best observed in Heberden's nodes and in morbus coxae senilis.

On the above classification, the radiographs of approximately 85,000 patients in the Barnes Hospital X-Ray Department present the following statistics:

Arthritis:

Infectious	234
Atrophic (rheumatoid)	195
Hypertrophic (osteoarthritis)	1661
Secondary (sequelae of trauma, disturbance of statics, etc.)	76
Unclassified and miscellaneous	475
Neurogenic arthropathy	59
<hr/> Total	<hr/> 2700
Tuberculosis of joints	478
Gout	18
Perthe's disease	29
Osteochondritis dessicans	15

The large number of hypertrophic cases is to be explained by the fact, as Baetjer and Waters⁹ point out, that most persons past forty show some evidence of hypertrophic change along the margins of the bones entering joints. These changes have all been included in this classification in our daily work.

In regard to secondary arthritis, changes similar to the preceding frequently develop as a late finding and it is a question whether they should not be included in the foregoing classification.

It is very difficult for a radiologist to estimate the value of radiography in arthritis. Most of the literature alludes to the great help obtained by this mode of examination, and some even state that the exact type of arthritis can be ascertained in this way. This is true, but unfortunately it is true only in some cases

and therein lies the great weakness of radiological procedures in the arthritides. What is needed in this method of study of these conditions is the same as that needed in the other diagnostic methods, i. e., study of the condition in its earlier phases. This is probably the reason for Painter's⁶ statement that there is so seldom an occasion to open an arthritic joint near the onset of the disease that little is known in regard to the early phases of the disease or diseases. However, the writer believes that all cases of arthritis should be systematically examined in this way, for it will assuredly result in the collection of a large amount of material which may at some future day throw more light on the etiology, etc., of joint affections. But the great field of usefulness for the X-ray in arthritic conditions is to eliminate other diseases or conditions which may confuse the clinical picture. As was stated in the beginning, painful affections of the locomotory apparatus frequently arise in something other than arthritis. There may be trauma; there is often a metastatic tumor; there may be some of the essential diseases of bone; osteitis deformans; osteochondritis deformans juvenilis; an unsuspected joint fracture; primary bone tumor; faulty statics not discoverable on ordinary examination, and possibly foreign bodies.

Before embarking on this communication, the writer hoped to present a more satisfactory classification of the arthritides and perhaps even some contribution as to the X-ray aspect of these affections, but this hope is unfulfilled and your indulgence is craved for presenting stereotyped information which coincides very closely with the writing of other radiologists on this subject.

Radiography of arthritic joints discloses only the late changes incident thereto. In the early phases, where information is most desired, the findings are few. A part of this defect is to be ascribed to the fact that patients are not submitted to this type of examination as early as would be desirable. However, in many cases radiography unquestionably results in placing these patients in their proper category and this will lead to a more desirable type of treatment than they might otherwise have. It is valuable in differentiation between arthritic affections and other morbid processes.

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PHYSICAL MEANS IN THE TREATMENT OF ARTHRITIS*

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The part allotted to me in this interesting symposium on arthritis, is its treatment by various physical methods. In this discussion it is understood that these measures are to be used as adjuvants and in connection with other recognized forms of therapeutics as drug therapy, specific and nonspecific therapy, diet, and possibly surgical procedure. Also that the causes of the disease must be looked for and removed, for it is obviously unfair to expect a cure of any disease by applying a remedy and failing to remove the cause. I wish to emphasize this point because it has such a direct relationship with the generally known and conceded abuse of physical therapy. Too many patients with arthritis are being treated by men who have been induced to buy expensive apparatus of various types and proceed to cure by means of their enlarged armamentarium, without taking true cognizance of the importance of first instituting an untiring search for possible foci of infection, toxic factors, errors of metabolism or other possible causes.

Physical therapy has in many instances been received with undue enthusiasm and used with little knowledge. If properly used it may justly be regarded as deserving of its proper place in the general scheme of the practice of medicine and surgery. It is, however, a fallacy to regard it as an exclusive method. I do not wish in any sense to belittle its true value but I do desire to point out that some of us who are specifically engaged in this work realize that exorbitant claims have been made by persons who are using apparatus as a means of making money rather than as a means of treating disease.

We intend briefly to discuss the reasons for using various physical measures and the outline of procedure evolved as a result of ex-

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

perience acquired in the physical therapy department of the Washington University School of Medicine.

Patients suffering with arthritis are referred to us after having received a thorough examination to determine the etiology. They come principally for the relief of pain, the correction of deformities and with a fear that unless the process be arrested more or less complete invalidism will result. In prescribing treatment we consider the stage of the disease—whether acute or chronic—and the general condition of the patient. In most cases we treat the patient systematically as well as locally.

In the early stages of the disease the inflammation and pain are often very acute; the indication here is complete rest. If the site is in the lower extremities or hips the patient voluntarily elects complete rest in bed. If however the shoulders are involved the patient is not so eager to do so. Economic conditions, or a dislike to confinement in bed for a supposedly trivial matter, frequently check an otherwise favorable prognosis. Acute shoulders should be confined to bed with the arm held in abduction and with almost constant application of heat. The arm need not in all instances be held in this position, for the comfort of the patient must receive due consideration; however, it is our conviction that an acutely inflamed shoulder, treated with rest, heat and abduction responds more favorably than if treated otherwise. Allowing the arm to be carried in a sling removes the weight of the arm but partially, the remaining weight acting as a constant stimulus toward the production of muscle spasm, and therefore pain. Furthermore, should the acute condition not respond favorably to treatment and become chronic there enters the element of muscle atrophy, a most undesirable complication. We must remember the law that an acutely inflamed muscle must not be mishandled and therefore must not be stimulated or fatigued by means of massage, electricity or exercise, and it must not be stretched.

The external application of heat and cold forms the basis of many physical procedures. The source of heat may be the sun, water, artificial light and electricity. The form may be convective, radiant or conversive. Examples of the first are hot water bottles, sand bags, superheated air, or hot packs. These forms are least penetrating, least useful, and lost their popularity with the advent of radiant heat, which is derived from the sun or artificial light. Visible light rays penetrate the human tissues only a matter of millimeters, when it is converted into heat energy and diffused through-

out the body by the blood stream. From this we gather that radiant heat is not deeply penetrating, but is more so than convective heat.

Infra-red refers to an invisible ray which is derived from any black body sufficiently heated. Manufacturers have placed various pieces of infra-red apparatus on the market under different trade names, all of which are practically alike so far as the production of infra-red rays are concerned; the difference is in the mechanical arrangement. The efficacy of both the radiant, the visible and the invisible infra-red, is entirely a question of volume of heat energy absorbed by the tissues. Either mode is a satisfactory method of applying external heat. Home made devices are usually not very effective, due to the relatively small light output they produce.

A much more desirable contrivance is the so-called diathermy, a high frequency current, with alternations so fast that the muscular tissue does not react by contraction nor electrolysis but, in meeting with resistance, is converted into heat. By this method deep seated tissue heating may be accomplished. To illustrate: We recently ran a series of experiments by placing on the abdomen and sacrum, respectively, of female patients, suitable electrodes. A thermometer was placed in the cervix under proper control. After a period of twelve to fifteen minutes the temperature in the cervix rose to 104 degrees. This seems to dissipate the assertion which has been made, that diathermy is not a through and through heating process but produces purely a skin effect. Diathermy offers the best means at our disposal at the present time for deep tissue heating, although the infra-red is quite satisfactory and a good second choice where the diathermy current is not available.

For general body heating the modern electric light cabinet offers the best method but is usually available only in physical therapy departments. For home use a simple device consisting of a framework with twelve to twenty-four electric light bulbs attached may readily be made. This is placed over the patient, lying in bed, and then covered with a blanket, leaving the head of the patient exposed. This procedure produces copious perspiration, with consequent loss of water and salts normally found in the urine. Due to the increased body temperature there ensues an increased loss of carbon dioxide which fact serves as an indication of hastened general bodily metabolism. Pemberton recently pointed out that a great loss of water and salt consequent on exposure to heat may induce serious consequences unless this loss is partly compensated by ingestion, and that this loss may be one of the factors, to-

gether with the alkalosis, which may induce muscle cramps. To avoid these untoward symptoms the patient is given a glass or two of water.

A systemic exposure to external heat of whatever form should always be followed by an ablution of some sort. This may be in the form of a sponge bath or shower bath, but a much better method is the so-called Scotch douche, which consists in directing a stream of water, alternately hot and cold, on the patient's body. Although it may seem too violent, such is not the case. The reaction which follows is a delightful feeling of well-being. The combination cabinet bath and Scotch douche is undoubtedly the best tonic procedure in the field of physical therapeutics. In our department it invariably forms a part of our outline of treatment of arthritis.

This idea of applying alternately hot and cold water has been found efficacious in local applications to the extremities. The method is commonly known as the contrast bath and consists in the use of two basins of water, one hot and the other cold. The hand or foot is placed in hot water for five minutes, then plunged into ice cold for one-half minute. This is repeated four or five times at a sitting and may be done two to four times a day. It is a powerful vasomotor stimulant producing an active rather than a passive hyperemia; a tonic rather than an atonic reaction.

High colonic irrigations should receive more attention in the treatment of arthritis. There are many practitioners who believe that the source of the trouble is very often in the colon. When proper investigation seems to indicate that such is the case, colonic irrigation should be considered.

Much has been said and written concerning ultraviolet radiation, though this is not the time for a general discussion. Suffice it to state here that we are quite convinced of the value of ultraviolet as a general tonic, for which reason we are using it in an effort to tone up the system generally and increase the bodily resistance. The technic usually followed is, to begin by exposing the entire body, anteriorly and posteriorly, to a mercury vapor lamp at a distance of thirty-six inches for a period of two minutes. Following this the technic varies according to conditions. Each patient must be handled individually and no blanket law can be formulated to meet all requirements.

Massage may be employed advantageously in all forms of arthritis. If properly performed it hastens the circulation and promotes absorption. It acts as a fitting substitute for joint movements, which, with muscular contraction, form the chief if not the only mode of propelling the lymph flow. It stretches and breaks

up newly formed tissues and, together with manual manipulation, is our main tool for the correction of contractures. Proper technic requires that the massage be always preceded by a thorough heating of the tissues; that the patient be placed in a position which will allow a maximum relaxation; that all movements be gentle without causing damage to tissues. Massage may produce contraction or inhibition of muscular action; it may produce pain or act as a sedative. Scientific massage is very much misunderstood by the doctor and very much misused by the ill trained operator, who oftentimes is an office girl with a two weeks training in physical therapy as a background.

Exercise is another procedure which is grossly misinterpreted by the average doctor and misapplied by the mediocre technician. The science of muscular action, stimulation and inhibition, muscle balance, fatigue and muscle stretching is an intensely interesting subject, a comprehensive knowledge of which, may I emphasize, cannot be acquired in a two weeks physical therapy course. I make bold to thrust this allusion upon you because of a desire to protect and maintain, if possible, that which is good in the field of physical therapeutics. Many doctors have been unrestrained in their criticism of this field of work. Many doctors have contributed much toward a condition justly deserving of criticism, by employing assistants who have not received sufficient training.

Exercise plays an important role in our scheme of treatment of arthritis, especially if we are dealing with a peri-arthritis of the shoulder or a chronic condition involving the lower back. It is used in various forms for the purpose of preserving the function of the joints and the soft tissues surrounding; to prevent atrophy of muscles, to relieve muscle spasm, and to reestablish muscular coordination. For this purpose passive, resistive and voluntary active movements are employed, each for a specific purpose. An elaboration on details, I regret to say, is not within the scope of this paper. It has previously been stated that an acutely inflamed joint should not be mishandled by massage, exercise or electricity, which is true. However, as soon as the acute stage with its accompanying excruciating pain has passed carefully executed movements are properly indicated. These exercises vary from simple finger movements performed by squeezing on a rubber ball while the hand is submerged in hot water, to the grosser movements of Indian club swinging involving the muscles of the entire arm and shoulder girdle group. It is often surprising what may be accomplished with a stiff, painful shoulder by the judicious employment of heat, massage and exercise.

One more subject needs to be discussed to

round out our theme, namely, electricity, which I am approaching with no small degree of apprehension because of its reputed disrepute. I am not referring in this instance to diathermy, which is solely a method of producing heat by means of an electric current and should in no sense be included in the commonly accepted phrase "electric treatment." I am referring to treatment by galvanism, faradism and the low wave currents. Galvanism is used for its polarity effect, which is primarily chemical in its reaction, for stimulating muscular action and for developmental and diagnostic purposes. The employment of this current for the last mentioned purpose has a real place of usefulness. There are conditions where muscle tone is lacking, where there is a definite degree of atrophy and where proper exercises cannot be performed. In such instances, muscular contraction brought about by an electric current, be it the galvanic, the faradic or the alternating, is very properly indicated. It is also true that each may serve a particular purpose better than the others. One often wonders, however, at the multiplicity of modified currents advised by the manufacturer, each of which is alleged to produce a different kind of muscular contraction.

SUMMARY

Having thus reviewed the various methods which may be employed in the treatment of arthritis, we shall conclude by presenting a typical plan of treating a case of chronic periarthritis of the shoulder, with adhesions, limitation of motion and muscular spasm. It may serve as a general outline and may be modified to suit various conditions.

Diathermy is applied to the joint, using one of several recognized methods of technic, for from twenty to thirty minutes, being guided by the size of the electrodes, the amperage and the tolerance of the patient. This is followed by manual manipulation of the joint in all directions. Generally there is limitation of abduction, external and internal rotation of the arm; or perhaps the choice is in the selection of the low wave current to produce muscular contraction, using the galvanic or alternating current. The diathermy has produced a deep congestion and the manipulation possibly a minor hemorrhage resulting in a temporary increase of pain. It is well at this time to use either the radiant lamp or infra-red to relieve both the deep seated congestion and the pain. This should be followed by gentle sedative massage.

At this stage we introduce whatever exercises seem indicated, the period lasting from one-half to two or three minutes and is followed by a Scotch douche, using water at a tem-

perature of from 105 to 115 degrees and dropping to from 70 to 40 degrees, depending entirely upon the type and condition of patient we are dealing with. This bath consumes three or four minutes. The douche is preceded by an electric light cabinet bath once or twice a week and the patient may or may not receive in addition ultraviolet radiation. Should there be an increase of pain the following day the manual manipulation and exercise will be omitted or decreased in intensity. The number of treatments may be three to six per week until improvement indicates a decrease.

This entire procedure takes from one to one and a half hours. The results are usually good from the viewpoint of relieving pain and increasing the general well-being of the patient.

We speak with less assurance with respect to contractures and ankylosis; in some instances we have had very good results, in others no definite improvement. Our best results have been obtained in conditions of the shoulders and lower backs.

600 S. Kingshighway.

DISCUSSION

Dr. I. H. LOCKWOOD, Kansas City: In listening to this symposium on arthritides, one is certainly impressed by the confused state of affairs, or perhaps I had better state, the present state of affairs regarding the clinical divisions and the etiological factors. However, that condition is going to pass away very quickly and the study of arthritides will forge ahead much perhaps as cardiology has done. Most of us can remember when a heart beat was simply a heart beat and there was not much more to say about it; murmurs then were the things to be studied. Then a few progressive men gathered up a lot of facts, correlated them and were able to see the effect they might have on the clinical problems at the time. With arthritides we are in somewhat that same state of affairs.

Perhaps we are more awake than the cardiologists were in the past few years. It augurs well that we are doing much research work which is being correlated, epitomized and reviewed and the facts regarding the arthritides are very readily available.

It has been said that without speculation there is no good original observation, and possibly the observer can generalize from his own observation better than any one else. In other words, the one who had wrestled with the problem of the arthritides for many years and collected data should be the one most fitted to theorize, to suggest and to point out the possible application of his work. The only danger is that some of his followers might feel that everything he said was true and take it for granted that the scaffolding he was building was the finished product.

I have wondered many times whether we are building a very definite foundation for the arthritides. Are we sure that all these published opinions have a real foundation, or are we being led astray? This uncertainty and confusion, I think, can readily be cleared up.

It seems to me that if the men who are studying the arthritides would get together and give us a very definite clinical division, classify the etiological factors, we could have some basis upon which to

work. Personally I feel the classification Dr. Moore gave us this afternoon is the most logical one. I don't say it is the one that ought to be adopted, but it is the most logical, especially from the standpoint of a roentgenologist though probably not from the pathological or bacteriological standpoint.

But if we could divide the arthritides into the infectious, the atrophic and hypertrophic types we would have some basis to start from. I like to think of the infectious type as an arthritis which may begin at any age. It has a wide range of pathological changes. The X-ray findings are oftentimes entirely negative. There may be, as Dr. Moore said, a slight narrowing of the joint space. It has been spoken of sometimes as destruction of the cartilage. This is possibly not true. There may be some bone destruction. The onset of this condition may become either acute or subacute. There is a clinical tendency to remission or recovery without any great permanent damage. The cartilage may be destroyed early but it usually has a tendency for the change to come on slowly.

The atrophic type I would like to think of as one from youth or middle age, a progressive condition that goes on to permanent damage and permanent deformity. Its victims are of the delicate, slender type, usually anemic. There are a good many nutritional disturbances, as Dr. Welker has told you. There is an unbalanced chemistry and there may be an endocrine disturbance. I like to feel in this type of individual that the removal of foci of infection will not cure that case. It will have to be something more than the removal of the foci of infection. Any foci of infection should be cleared up and will benefit the general physical condition of that patient.

The individual of the hypertrophic type is almost an exact opposite of the one with the atrophic. There is an unbalanced metabolism. Constipation probably stands out as one of the great symptoms of this case. The joints usually affected are the ones which bear the stress and strain. In other words, as Dr. Moore stated, this condition occurs in the later years of life. Few if any of these cases are caused by bacterial invasion except possibly from the colon.

A good deal of work is being done upon this. It hasn't been definite and hasn't been given to us in a form which we can quite grasp. Undoubtedly this may have some bearing on the hypertrophic case. The gallbladder may also enter into the case. I would have liked to have seen more stress laid upon the hypertrophic type of arthritis. This type is making our industrial work difficult under the compensation law. When a case with hypertrophic arthritis develops a fracture or injury or sprain near that joint it is hard to classify and give a definite opinion of the compensation that man should have, of the length of disability or the type of disability. These cases are prone to take a longer time to recover. In a great many hypertrophic cases you find a lot of foci of infection, especially among the working men. These foci of infection, such as bad teeth, tonsils, prostate, should be cleared up.

Dr. Francisco has covered the subject very fully. I don't think it is possible, from a clinical standpoint, or from an X-ray standpoint, to make a diagnosis of luetic origin. We all recognize and know Charcot's joint.

I have been particularly interested in the association of arthritic disease with gallbladder disease. In a large series of pathological, nonfunctioning gallbladders more than seventy per cent. have shown pathological gallbladders.

DR. R. M. SCHAUFFLER, Kansas City: Some time last fall I had an article in the *Journal of the American Medical Association* and tried to sum up this

problem of arthritis from a practical point of view. I am not going to stand up here and repeat that paper to you, but I am referring to it in a way.

Dr. Haden said very well that the classification was all mixed up and this discussion and these papers are all that we need to prove that, because the different men don't mean the same thing when they use the same word. It is very difficult, clinically, to put over the proper pathologic nomenclature. The old classification of atrophic, simple infectious and hypertrophic is the simplest of all. Let us see what we mean by them because these very terms were used to mean different things this afternoon.

As I see those cases in the diagnostic clinic of the Research Hospital and in my own practice, they are mostly cases that have been sick quite a while, chronic cases seen in consultation. About one-sixth are what I call atrophic and three-sixths, or half of them, are simple, plain or pure infectious arthritis; two-sixths, or one-third, are hypertrophic. Dr. Lockwood very well gave the distinction but I would like to repeat it.

Atrophic arthritis is a very severe, chronic, progressive crippling disease in which the joints tend to be subluxated, drawn out of position, and tend to bony ankylosis. It may be the result of infection which occurs in young children and by the time we see the cases the infection is the minor part for the patients are sick in many ways. There are all kinds of things the matter with them. They are anemic, their blood chemistry is disturbed, endocrines unbalanced. Removal of local foci of infection alone never cures these people but sometimes makes them worse because they are not able to stand the blow. You have to treat all the disturbances in every way available if you are going to materially relieve any considerable number of these people.

Infectious arthritis may be at any age. The joints are swollen and tender, there is usually fever early. These joints may completely resolve and the patient may be up and down half a dozen times. X-ray pictures are always negative except for the joint swelling. No X-ray picture is negative in an atrophic case.

The remaining type is hypertrophic arthritis, that is, the middle and old age arthritis with the spurs and the lips of bone, the cupping of the edges of the vertebrae, and the spurs around the knee or wherever they may be. Here again you have a disease in which infection plays only a minor part and in which metabolic changes and circulation play the major part.

Thus in half the cases which I see the discovery and removal of local foci is all important and in the other half it is of small moment.

It is true that the constitutional condition has something to do with the susceptibility. One fellow will stand a big dose of poison and another one a small dose. In an acute infectious arthritis the primary focus of infection is usually around the mouth or nose. But I also firmly believe that in the cases I have seen many of them have secondary or tertiary foci of infection. Some of these are in the lymphatic tissues. Many of them are in the colon and are caused by the same streptococci which infect the mouth. Some are in the gallbladder. Some come from the genito-urinary tract. If a primary focus has been already removed and the arthritis goes on you have to find a secondary focus of infection, and you have to search very diligently for it. To begin with, there is usually nothing the matter with the patient except the arthritis. Other constitutional disturbances are secondary in infectious arthritis, while they are primary in atrophic and hypertrophic cases.

I worked hard on carbohydrate metabolism at one time but found no practical helps from a therapeutic or diagnostic point of view.

Acute infectious arthritis or rheumatic fever is always due to some infection. The difference is that the infection may enter through a mucous membrane apparently not before damaged rather than through the activity at some preexistent local focus. The patient has an acute nose or throat infection and the arthritis follows in a few days. Whether the actual organisms go to the joint or the toxins only is not yet settled.

The second group of acute arthritis is due to some local focus of infection, most often the tonsils. The patient is a little run down, the pot boils over and the arthritis begins.

If you remember this distinction it saves a lot of worry over a certain number of the worst cases where there was no neglected focus which you ought to have discovered.

DR. JOSEPH GRINDON, St. Louis: I have unfortunately acquired a certain familiarity with the symptoms of arthritis. I have had a case in my immediate family for the last ten years, one of the hypertrophic type.

Very briefly, this concerns a lady who enjoyed perfect health in all respects up to about the age of fifty, with two exceptions. These two were significant. All her life she has been subject to urticaria, as were other members of her family, and to hay fever. In other words, she was readily sensitized.

Dr. Welker, in speaking of the different endocrine conditions predisposing to arthritis, did not mention hypopituitarism. In this case, as in some others that incidentally came to my notice, this seemed to be a factor. Lowered resistance to foreign proteins often accompanies hypopituitarism.

In this case focal infections were carefully looked for but were not found. Perhaps they ran their course as the last speaker said, without leaving any obvious sign. The basal metabolism was about normal. Following the ideas of Ralph Pemberton, of Philadelphia, the patient was placed on a low carbohydrate diet and the CO₂ output through perspiration increased by the use of dry heat. This, with diathermy, was of some benefit. Massage, as was said by Dr. Ewerhardt, yields a little increased mobility, not by loosening the joint itself but by momentarily relieving the muscle spasm.

Let me refer briefly to what Dr. Ewerhardt said about the abuse of the ultraviolet light. I use the ultraviolet light for certain skin conditions and in these things it is perhaps the most valuable agent I possess. But people come to me who have been treated for all kinds of skin conditions with the ultraviolet light, air cooled or water cooled, and often made much worse.

The use of the ultraviolet light for any sort of thing when you don't know what else to do, is a most pernicious practice. The various electrical bulbs of the ordinary sort, perhaps of a blue color, are of course valueless except as furnishing heat. They may do good in that way. Any idea that you are going to get an ultraviolet ray out of a light inside a blue bulb is, of course, foolishness. There are few ultraviolet rays emitted by an incandescent lamp. It is a reddish light to begin with. Such ultraviolet rays as there are can't get through the glass bulb because ordinary glass is opaque to them. Making the bulb blue is only adding insult to injury. You cannot add anything in that way and are only subtracting something by shutting off all the rays except the blue ones.

DR. RUSSELL L. HADEN, Kansas City, in closing: I only wish to emphasize again the importance of

having a simple classification of joint infections as a working basis for treatment. In the present state of our knowledge of chronic arthritis it is most difficult to make an etiologic classification. Cases of rheumatism of the type commonly considered as due to infection may be due to widely different conditions.

ARTHRITIS AND THE ORTHOPEDIC SURGEON

ARCHER O'REILLY, M.D.

ST. LOUIS

This paper is based on a review of some of the more recent literature on arthritis and the author's experience, and is an attempt to correlate these and to suggest an outline for the treatment of arthritis.

"In spite of the fact that arthritis is the oldest disease entity of which there is historical record, investigative work as to its cause has been less intense and knowledge as to its true nature has remained more meager than with many less widespread conditions. The explanation is to be found partly in the refractory nature of the disease itself, but also in the fact that for some reason the rheumatoid problem has been thrown into the limbo of uninteresting and hence unprofitable chapters of medicine."¹ This statement is from an editorial in *The Journal of the American Medical Association*.

I know of no statistics that will show the prevalence of arthritis in this country, but we do know that it is one of the most common diseases. In Berlin arthritis is more than eight times as common as tuberculosis.¹ Kinnear² estimates that the cost of rheumatism to Great Britain is \$82,000,000 a year, and this does not include most of the people over seventy. Our institutions are full of men and women who are incapacitated by arthritis. The disease, then, is of importance not only medically but also economically.

The orthopedic surgeon is especially interested in arthritis because he sees most of the old cases in which deformity has developed. He is interested because he strives to prevent deformity and feels that in a majority of cases deformity is unnecessary. He is also interested in arthritis because it is a chronic condition and he is used to handling chronic cases.

CLASSIFICATION

There have been many classifications of arthritis and they have been given many names. At present, however, the majority of writers follow Nichols and Richardson's³ classifications. They divide arthritis into two types:

1. Proliferative arthritis; also called atrophic and rheumatoid arthritis. In this type there is

periarticular thickening with proliferation of the synovial membrane at times associated with proliferation of the connective tissues. A panus gradually grows into the joint, there is destruction of the cartilage with possibly a final ankylosis. There may be periods of remission. This form attacks the young to middle aged.

2. Degenerative arthritis; also called hypertrophic and osteoarthritis. In this type there are few changes in the synovial membrane. The joint becomes enlarged as the result of overgrowth of bone with the development of osteophytes. Later there may be some destruction of cartilage, but the exposed bone becomes hard and eburnated and bony ankylosis does not develop. Stiffness is the result of bony block, except in those cases where the osteophytes fuse. This type occurs from middle to old age.

Swaim⁴ follows more closely the original classifications of Goldthwait.⁵ He states that "The proliferative type is composed of two distinct types: the infectious and the atrophic. In the infectious type there is periarticular thickening with, later, a possible destruction of the cartilage and joint, but it does not cause bone atrophy as seen in the atrophic type. In the degenerative or osteoarthritic type there are exostoses at the edge of the joint, with little bone atrophy."

In proliferative arthritis, infection or toxemia seems to be the most important cause. This infection may come from the tonsils, the teeth, the sinuses and possibly many other places. The intestines, also, seem to be a very important seat of infection. Ely,⁶ Barrow and Armstrong⁷ and other Western men believe that intestinal protozoa are important in causing this form of arthritis. In the East and Middle West not so much importance has been paid to this phase, possibly because protozoan infection is not as common here and also because we do not look for them. J. A. Freiberg⁸ in work done at the Harvard Medical School has produced a proliferative type of arthritis by injecting a sterile filtrate from a suspension solution of Flexner's dysentery organism into rabbits.

Pemberton⁹ thinks that a lessened blood supply may play an important part in arthritic changes.

Many of this type of the arthritic have a lowered sugar tolerance, their metabolism is poor and many have errors in posture. Swaim⁴ connects arthritis directly with postural defects. "The atrophic group is found in the slender anatomic type, the visceroptotic light boned person . . . The degenerative or

hypertrophic type is found in the heavy anatomic type of person."

Osgood¹⁰ and others question whether the focal infection may not be the result of the general debility that accompanies this disease rather than the cause. Fatigue and worry also seem to be predisposing factors in inducing this type of arthritis. These all cause a lowering of resistance and render the organism more susceptible to infection.

The degenerative type¹⁰ may often be present without demonstrable cause. It is probably due to faulty body chemistry and faulty bodily mechanics.

It is important to differentiate between these two types of arthritis because the treatment varies markedly with the type.

The treatment of arthritis is probably primarily medical, but requires the careful cooperation of a number of specialties, with the internist acting as director and as a clearing house for the information elicited by the other consultants. It is understood that he must have sufficient knowledge of the subject to profit intelligently by this information and advice.

There is no short cut in the treatment of arthritis. Each patient is a distinct problem and must be studied as such.

In the proliferative type all foci of infection must be found and removed where possible. These are sometimes obscure so that a thorough search must be made, not a superficial examination as is often done. Metabolism and blood chemistry should be studied. The regularity of the bowel movements, their quality and quantity should be noted, and probably a bacteriologic examination of the feces made. Errors of bodily function should be noted and corrected and all postural defects should be corrected.

The ideal place for this preliminary examination is in a hospital. There the examination can be made more thorough, more rapid and a conclusion can be reached with a minimum of effort. The close cooperation of all interested in the treatment is an important factor.

There seems to be a difference of opinion in the value of drugs, and especially on the effect of protein injections. A number of men seem to think that improvement is due to the effect on metabolism. In some cases autogenous vaccines seem to have helped. Gibson¹¹ and others have found bacteria in the deep inguinal glands and claim some success from vaccines made from these. There is also a great difference of opinion on the effect of O-Iodoxy-Benzoic acid. In some cases it has

a beneficial effect, especially in relieving pain and muscle spasm, but it seems to be more useful in early cases and in the acute types of arthritis. Where it has been of benefit in chronic cases it seems to have been used in conjunction with other forms of treatment, notably physiotherapy and elimination.

Swain⁴ is rather specific in his statements about diet. He says: "Diet probably plays a part in arthritis, and dieting is one way of catering to weakened functions and lightening the load, as is done in diabetes. If the sugar tolerance is lowered a low carbohydrate diet is indicated, and if the digestion is poor, cutting down the calories may help. We believe that cases of atrophic arthritis should not be dieted but should have an abundance of mineral salts because of their acid saliva and sweat, their loss of bone salts, their excretion of calcium, and thyroid depletion, we give an excess of base forming foods such as fruits, vegetables, and whole grains, all base forming foods which form an alkaline reserve as opposed to meats, white flour, white sugar, cheese, meat extract, candy, and syrups which are acid forming foods and require alkalines to neutralize them. It is not illogical to suspect that the excess of acid forming materials, which are increasingly consumed as our foods are more refined, may be a factor in arthritis of the atrophic group."

"Pemberton restricts the general caloric intake and lowers the carbohydrate especially, basing this on the lowered sugar tolerance test. His diet contains much fruit and vegetables. An atrophic case should never be depleted as such a patient is already about as far down as he can safely go. Hypertrophic cases we diet only if they are too heavy, for they are not acid, and, in our cases, they have not shown lowered sugar tolerance. Our experience has been that the best method of dealing with diets is to increase the patient's functional capacity to handle any food through promoting normal physiology, using diets only in extreme cases which would not respond otherwise."

Diet, then, should be prescribed, according to the special needs of each patient, after a careful study.

In connection with the lowered metabolism there may be some endocrine disturbance. These patients are benefited by the administration of thyroid extract.

The general feeling seems to be that treatment should be directed toward a general improvement in condition, improved metabolism, normal elimination and the correction of postural defects. Foci of infection should be eliminated as possible contributing causes. The object is to put the patient in a condition where

he can resist and overcome the effects of infection. Heliotherapy is also useful in this connection. If this regime is carefully followed and persisted in much can be done for the arthritic.

The orthopedic surgeon sees many cases of arthritis, some in the early stages but many more in the later stages when deformity has developed. This is unfortunate because with proper treatment there should be no deformities. Pemberton¹² considers nearly every case of arthritis which presents serious deformities a reproach to the medical profession.

Orthopedic treatment is important in the management of proliferative arthritis. In the early stages improper posture should be corrected so that the heart, lungs and abdominal viscera may function properly. Heat is of value. It relieves pain, relaxes muscles and increases the blood supply. Stoner¹³ thinks that diathermy is contraindicated in active joint involvement. In the acute painful stage the joints should be given rest. As soon as these have subsided they should be given active painless motions. Strain on the joints of the legs can be prevented by giving exercises while lying down. It is important that the patient be encouraged to get as much exercise as is consistent with the condition, in order to prevent stiffening of the joints and to promote bodily function. In arthritis the patient should have plenty of fresh air and is benefited by a regime of heliotherapy.

Occupational therapy also plays an important part in giving motion to stiffened joints. This has been found much more useful than repeated manipulations. It does not cause swelling and accompanying interference with circulation.

If deformities tend to develop these should be prevented by suitable apparatus. We must remember that arthritis, if neglected, will result in deformity. This fact, however, is too often overlooked and orthopedic advice is not sought or heeded.

Patients with acute proliferative arthritis are allowed to vegetate in a hospital or at home, lying in bed with their knees propped up on pillows, with their backs elevated and probably no support for their feet; or they are allowed to sit for hours at a time in a chair with their knees flexed, with pillows back of their heads, throwing the spine forward and depressing the chest. The inevitable occurs. These unfortunate patients develop flexion deformities in the hips, knees and ankles and probably in the spine. When the acute symptoms have subsided they are not able to walk. The deformities can be corrected only by severe manipulations or open operations and in many

cases their physical condition will not permit this.

It is easier to prevent these deformities than to correct them. The joints should be examined frequently to see whether there is any tendency toward flexion deformity. Joints should not be allowed to remain in one position constantly. The patient's position in bed should be such that if stiffness develops the spine and joints will be in the best possible position for bodily function. At the first sign of deformity braces or other apparatus should be applied to counteract this tendency.

"In the degenerative or hypertrophic type, rest of the affected joint is indicated accompanied by heat and massage, about, but not on, the chondro-osseous ridges; by intermittent painless motion, but not by manipulation."¹⁰ All strain upon the joint should be corrected by careful attention to posture and bodily mechanics, and by mechanical support when necessary.

Arthritis is widespread and of great economic importance. Probably on account of its chronicity and difficulty of treatment, it has not received the consideration that its importance warrants. As Stoner¹³ says, "The treatment of these cases should not be left in the hands of the quacks and faddists. Institutional medicine should make an effort to standardize treatment which should be made intensive over a period of time."

Osgood,¹⁰ I think, gives a very complete summary of the subject, viz.:

"1. Rheumatoid (proliferative) arthritis is a disease in which no specific organism has been found which can be held constantly responsible for its causation. Probably many different types of organisms and many other factors play etiologic parts in its onset and course.

"2. In the early stages of rheumatoid (proliferative) arthritis, if these organisms and if the other factors can be overcome, complete recovery is possible. In the later stages, if the factors inimical to normal vitality can be eliminated and the essentials for normal body mechanics can be satisfied, arrest of the disease and great functional betterment can be expected. In this stage the simple eradication of a possible focus of surgical infection will rarely be successful in controlling the progress of the disease.

"3. Osteo (degenerative) arthritis is a disease in which no specific organism has been conclusively proved to be responsible for its causation. On the basis of the present evidence its manifestations may occur unassociated with any demonstrable remote or local focus of infection.

"4. In the early stages of osteo (degenera-

tive) arthritis, if a faulty body chemistry and a faulty body mechanics can be corrected and intra-articular friction can be lessened, almost complete relief of the subjective symptoms is possible. In the later stages, if intelligent physiotherapy, protective appliances, and well conceived orthopedic surgery be added to these measures relief from discomfort and greatly improved function may be expected."

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THE KAHN QUANTITATIVE PROCEDURE*

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The standard Kahn test is primarily a qualitative test although it has quantitative features. It differentiates between sera that give reactions varying from negative to four plus, but it does not intimate the potency of four plus sera. Syphilitic sera giving strong serologic reactions differ in their potency. The quantitative test determines the potency of these sera giving four plus reactions in terms of Kahn (reacting) units which may vary from four to two thousand or possibly more.

It is generally believed that the serologic reaction is an index of the state of syphilitic infection existing in the patient. In the early primary stage a "weak" serologic reaction is expected while in the secondary stage a "strong" reaction is usually had. It is also believed that the serologic reaction is an index of the efficacy of treatment. If a patient's serum shows a four plus reaction, antisyphilitic treatment will cause this reaction to diminish. Some syphilologists regard a diminution in the intensity of the

* From the laboratory section of the St. Louis Health Division.

N. B. Thanks are due to Martha Monell for her assistance with the Kahn test.

serologic reaction as an index of the clinical status of the patient. It is known that sera from syphilitics may remain four plus even after extended treatment, although they may show clinical improvement. It is these cases, and in fact all treated cases, where the quantitative test would give the physician a clue to the effect of treatment as determined by the serologic reaction. It would help the physician materially in judging the clinical status of his patient if his serologic reaction was reduced, e. g., from 400 Kahn units at the beginning of treatment to 80 or 40 after several months of treatment in those cases where the routine (qualitative) test is persistently four plus.

The Kahn quantitative procedure has been utilized in the laboratory of the St. Louis Health Department to study the serologic effect of treatment on certain selected cases of syphilis at the division venereal clinic and on a few cases submitted by the practicing physicians. It was impossible to secure a complete series of tests on the patients being treated at the venereal clinic because of their failure to complete more than one course of treatment, and from the practicing physician because of the small number of blood specimens submitted from each patient undergoing treatment. The results of treatment in three cases are given in the following table. It is noted that the routine test is consistently four plus but that the quantitative test shows a gradual decreasing number of Kahn units.

2,000 Kahn units in tertiary syphilis where little or no treatment was administered.

A quantitative Kahn test is made only on sera giving four plus reactions with the routine test. On sera weaker than four plus, the routine test is in itself quantitative in that it differentiates between four plus, three plus, two plus, one plus, doubtful and negative reactions. Because of the inherent nature of the test all reactions weaker than four plus have four units and no more. It is impossible for a two plus or three plus sera to give more than this number.

The foregoing statements will be better understood after considering the following: the routine test consists of three tubes, each having a different antigen-serum proportion. One of the tubes consists of 0.05 cc. of antigen suspension plus 0.15 cc. of the patient's serum; another of 0.025 cc. antigen suspension plus 0.15 cc. serum, and the last tube 0.0125 cc. antigen suspension and 0.15 cc. serum, thus making a proportion of 1:3, 1:6 and 1:12 respectively. The tube containing the 1:3 proportion is commonly referred to as the first tube, that containing the 1:6 proportion as the second tube and that containing the 1:12 proportion as the third tube. The first tube (1:3 proportion), containing the largest amount of antigen suspension, is the least sensitive and the third tube containing the smallest amount of antigen suspension is the most sensitive. The first tube becomes negative first and the last tube remains

Table 1. *Quantitative Results in Three Treated Cases of Syphilis*

Patient	Clinical History	No. Treatments Neoarsphenamine	Date Treated	Routine Kahn (Qualitative)	Quantitative Kahn Units
C. D.	Primary	None	12/ 5/27	++++	320
		One	12/13/27	++++	240
		Two	12/19/27	++++	200
		Three	12/24/27	++++	160
		Four	12/31/27	++++	120
R. B.	Primary	None	10/10/27	++++	400
		One	10/18/27	++++	280
		Two	10/25/27	++++	280
		Three	11/ 9/27	++++	160
E. W.	Primary	None	11/ 5/27	++++	320
		One	11/23/27	++++	280
		Two	12/ 1/27	++++	240
		Three	12/ 7/27	++++	200

As has been stated, four plus sera vary in potency; some give "strong" and others "weak" four plus reactions. In terms of the Kahn quantitative reaction such sera may have a large number of Kahn units or a small number, depending upon the stage of syphilis and the amount of treatment received. Usually the early cases of primary syphilis show a small number of Kahn units while the late secondary and early tertiary show a large number. We have tested sera that have given as many as

positive the longest. The first tube of the quantitative test consists of 0.01 cc. antigen suspension and 0.15 cc. serum, a proportion (1:15) which is slightly more sensitive than the last tube of the routine (1:12). If the last tube of the routine is positive then the first tube of the quantitative will also be positive.

In cases of syphilis where the serum is strongly positive the serologic reaction as determined by the routine test is +++++ +++++ in the three tubes. The

final result or the result reported is the average of the three tubes. A reaction of this sort (four plus) may vary quantitatively from 2000 to 4 Kahn units. After antisyphilitic treatment (the amount varying in each case) the number of Kahn units is usually reduced to 4. At this point the four plus reaction begins to border on a three plus reaction. The + + + + + + + + + + (+ + + + +), in the three tubes becomes + + + + + + + + + + (+ + + +). With continued treatment the serum reaction becomes — + + + + + + + + (+ +) then — ± + + + + (+), — ± + + (±) and finally — — — (—). It is thus seen that all reactions weaker than four plus have 4 Kahn units and that these 4 units will persist until the last tube in the routine test becomes negative. A quantitative test, therefore, gives additional information only, when made on four plus sera.

The quantitative test consists essentially in diluting the four plus serum with physiologic salt solution in varying degrees.¹ These dilutions are then tested with standard antigen and the last positive dilution is considered as the end result. Marked precipitation resulting from mixing 0.15 cc. undiluted serum with 0.01 cc. standard antigen suspension is considered as four Kahn units. By employing the amount of antigen suspension as a constant with varying dilutions of a given syphilitic serum with salt solution, the number of reacting units is determined according to the formula $S=4D$ where S represents the potency of the serum in terms of Kahn units, and D the maximum dilution giving a definite precipitation.

The method of diluting the four plus serum is given in the outline below; if the last dilution (1:60) is found to be positive, it is then necessary to carry out the dilutions further,

also utilizing the 1:10 serum dilution. The outline follows:

Tube No.	Dilution Ratio	
1	1:1	= undiluted serum
2	1:5	= 0.2 cc undiluted serum + 0.8 cc salt solution
3	1:10	= 0.7 cc 1:5 dilution + 0.7 cc salt solution
4	1:20	= 0.2 cc 1:10 dilution + 0.2 cc salt solution
5	1:30	= 0.2 cc 1:10 dilution + 0.4 cc salt solution
6	1:40	= 0.1 cc 1:10 dilution + 0.3 cc salt solution
7	1:50	= 0.1 cc 1:10 dilution + 0.4 cc salt solution
8	1:60	= 0.1 cc 1:10 dilution + 0.5 cc salt solution

Seven tubes (1 cm \times 7.5 cm) are set up in a Kahn rack and the proper amount of salt solution is added to each tube beginning with 0.8 cc. in the first tube and ending with 0.5 cc. in the last tube. To the 0.8 cc. salt solution in the first tube is added 0.2 cc. of the serum (previously inactivated at 56° C. for 30 minutes) to be tested. The 0.7 cc. of the 1:5 dilution is added to the second tube which contains 0.7 cc. salt solution making a 1:10 dilution. This 1:10 dilution of serum is used in making all of the other dilutions. A 0.2 cc. pipette graduated into 0.001 cc. is used in making all of these dilutions.

To another set of 8 tubes is added 0.01 cc. of standard antigen suspension after the serum dilutions have been made. The serum dilutions in 0.15 cc. quantities are then added to the antigen tubes beginning with the highest dilution and ending with the undiluted serum in the first tube.

After the serum has been added to the antigen suspension, the test is shaken for three minutes in a Kahn shaker (270-280 oscillations per minute) or if a shaker is not available they are shaken vigorously by hand for the same length of time. Following the shaking period, 0.5 cc. of salt solution is added to each tube and the tests read. A positive reaction is considered as either ++, +++ or ++++. Table 2 illustrates some typical reactions with the quantitative procedure:

Table 2. *Some Typical Reactions With the Kahn Quantitative Procedure*

Serum: Salt solution . . .	1:1	1:5	1:10	1:20	1:30	1:40	1:50	1:60		Four times the maximum dilution of serum giving definite precipitation	Serum potency in terms of Kahn (reacting) units
Serum dilution, cc.	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15			
Antigen suspension (standard antigen) cc.	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01		(4D)	(S)
Serum number											
1	Pos.*	—	—	—	—	—	—	—		4x1	4
2	Pos.	Pos.	—	—	—	—	—	—		4x5	20
3	Pos.	Pos.	Pos.	—	—	—	—	—		4x10	40
4	Pos.	Pos.	Pos.	Pos.	—	—	—	—		4x20	80
5	Pos.	Pos.	Pos.	Pos.	Pos.	—	—	—		4x30	120
6	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	—	—		4x40	160
7	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	—		4x50	200
8	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.	Pos.		4x60	240

* Pos. = Denotes precipitation reaction, ++, +++ or ++++

Gasser and Houghton suggest that "It occasionally happens, especially in cases of long standing, that at the beginning of therapy one will note a gradual decrease in Kahn units in the blood of the patient, while with continued therapy the number of Kahn units may remain the same. A change of therapy is then indicated."² A chart illustrating a case of this kind is shown in which a patient with tertiary syphilis gave a four plus Kahn reaction and 600 Kahn units. With neoarsphenamine and mercury the Kahn units were reduced to 120 but remained stationary at that point. With the administration of sodium thiosulphate the Kahn units dropped to 80 at which point the patient was transferred from the institution. They further state, "It should be pointed out that during the interval between Feb. 15, 1926, and May 16, 1927, twenty-three regular (qualitative) Kahn tests were made and in all the reaction was four plus."

Quantitative records covering a large number of treated cases have shown that it is possible to judge the effect of treatment by testing the sera quantitatively before each treatment. Some of these cases start with 400 units before treatment and after one or two treatments the units are reduced to 320 or less. Each successive treatment succeeds in reducing the units until in time the serum shows only 4 units which indicates a "weak" four plus reaction. In making these quantitative tests on a given case it is of course necessary to have the cooperation of the clinician. It is necessary that he submit a specimen before each course of treatment or better still before each treatment with the information relative to the number of treatments administered.

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ETIOLOGY OF PERNICIOUS ANEMIA*

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Pernicious anemia has been known since 1855 when Thomas Addison¹ described the first case. He confused it with a disease of the suprarenal bodies and offered no explanation as to its etiology. Since that period a large number of observers have studied the disease and have advanced many ideas as to its nature and cause. Some of these opinions

have been accompanied with excellent observations while others have had little or no supporting evidence. Despite extensive investigation the cause of pernicious anemia has remained a complete mystery until recently. In the short space of the past three years much more has been added to our knowledge than had been discovered in all the years before. From this newer work we now understand much concerning management of individual patients. The practical treatment of the condition is effective. Pernicious anemia has been taken out of the class of fatal diseases. There are, however, many essential points by no means clear and the ultimate cause is still hidden. In many respects our present knowledge of pernicious anemia may be compared with the knowledge we had of syphilis before the discovery of the spirochete or of malaria before Laveran.

The more closely we study pernicious anemia the more do we realize its general nature. Evidences of the disease are found in every tissue of the body and quite obviously in three different systems: the gastro-intestinal organs, the central nervous system and the hematopoietic organs, which may be understood to include bone marrow, spleen, liver and the blood itself. In searching for the cause of the disease it was quite natural that investigators should turn to the study of those etiological factors which ordinarily produce widespread disturbances.

The literature on the subject is enormous and it will be quite impossible in this paper to discuss the many ideas concerning the etiology of pernicious anemia. It is advisable to consider only a few of the more important phases. We have selected for discussion the following as representative of the ideas which prevail at present: These are, first, the constitutional and hereditary factors; second, the infectious theories; third, the evidence that pernicious anemia belongs to the class of deficiency diseases, and last, the importance and significance of the gastro-intestinal tract in this condition.

For many years constitutional factors and habitus as related to disease have been studied. Until recently, scientific anthropological measurements and observations have not been carried out in the clinic. Draper's² observations in pernicious anemia are interesting. He claims that the ramus of the lower jaw is longer in pernicious anemia than in any other disease. He finds that patients with this condition ordinarily have chests which are both deep and wide. In this respect they resemble patients with the gallbladder habitus except that, in the anemia cases, the thorax tends to be

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Read before the St. Louis Medical Society, June 5, 1928.

shorter and the subcostal angle wider. Much has been written concerning the racial distribution. The disease is more frequent in Northern Europe than in Southern, but whether this incidence is racial or climatic is a question which cannot be settled at present. The racial problem is still debated and while Cornell³ claims that full-blooded negroes do not have the disease, Jamison⁴ declares that there is as much pernicious anemia in the negro as in any other group.

All writers mention the role played by heredity in the production of the disease and they quote many convincing instances which cast strong suspicion that this factor may be closely associated with the etiology. Some families have been studied which have shown as many as seven individuals with the disease.

In a recent article, Meulengracht⁶ has suggested that pernicious anemia may be a genotypic disease which he has defined as one in which the basic peculiarities present in the fertilized egg determines the individual's possibility of development. Barker⁵ discusses this and considers it a possibility. He reasons further that many individuals die before the pernicious anemia age, many are not observed, and others are not influenced by what he terms "releasing factors," by which he means secondary causes that are necessary for the development of the disease even in persons constitutionally predisposed. All these factors must interfere seriously with any study of the hereditary and constitutional influence.

There is nothing outstanding in the symptomatology of the disease suggestive of infection. There is fever in many cases but it is not constant, not marked and not characteristic. The circulatory symptoms are in keeping with those found in any anemia. In many cases there is a loss of weight, although the early description claimed a fair preservation of body substance. Despite the lack of evidence in favor of an infectious origin, a host of microorganisms have been isolated from individual cases and suggested as the causative factor. One was discovered by Hunter⁷ in a tongue muscle; another (the green streptococcus) has been isolated from the intestinal contents and even the blood stream. Many other organisms are mentioned, to say nothing of bacterial toxins suggested as the cause of the disease. Macht⁸ discovered a substance in pernicious anemia serum which was poisonous to plant protoplasts and which was inactivated by quartz light. From his results nothing could be inferred concerning the origin of the toxin.

Ideas concerning the association of pernicious anemia and infection were undoubtedly

strengthened by the occurrence of pernicious anemia in some cases of *dibothriocephalus latus* infection. This disease does occasionally produce an anemia which is quite severe and which has a blood picture resembling pernicious anemia in every detail. A few of the cases of tapeworm infection apparently terminate in a picture of true pernicious anemia. It is pointed out, however, that 33 per cent. of the population of Finland have the tapeworm infection, while only one-tenth of the carriers ever develop pernicious anemia. This incidence may be no more than the ordinary incidence of pernicious anemia in other communities. When all the evidence is collected there is grave doubt cast on the possibility that pernicious anemia is related to any type of infection.

Interesting evidence has been advanced recently by Kahn and Torrey⁹ and by Moench, Kahn and Torrey¹⁰ concerning the relation of the disease to absorbed bacterial toxins, especially the *B. welchii* toxin. Kahn and Torrey used monkeys into which they injected *B. welchii* toxin intravenously. They found that the animals very soon established an immunity to the toxin and that they could carry their experiments no further. These animals did, however, develop an anemia and a persistent leukopenia. In other monkeys they produced a gastritis by introducing into the stomach a one to three per cent. sodium fluorid solution. They then fed *B. welchii* toxin by tube and in this way produced an anemia which had a high color index and a marked variation in the size and shape of the red cells. Necropsy of these animals showed all the organs anemic, the bones very pale, the marrow softer and lighter red than usual with marked cellular infiltration and an absence of normoblasts. This work indicates that a picture simulating pernicious anemia can be produced by a combination of anacidity and bacterial intoxication. It suggests a possible etiology for the syndrome but gives no definite information concerning the causation of the clinical disease.

While considering the gastro-intestinal flora and the importance of various organisms and toxins, the problem of monilia infection should be remembered. Monilia were demonstrated in the stools of sprue patients by Ashford¹¹ in Porto Rico. The similarity of sprue and pernicious anemia is well known. Fleischer¹² and his associates, in patients with chronic diarrhea, isolated the yeast in 62 per cent. of cases. In some, they demonstrated the fungus in the blood stream also. Although they found the fungus in a small percentage of normal indi-

viduals they believed that the presence of the monilia is closely related to the diarrhea which they were studying. Observers reported recently a confirmation of E. J. Wood's¹³ work of the association of monilia and pernicious anemia. Wood had found monilia in twenty-four cases of pernicious anemia, while the fungus was present in only two controls. Warthin,¹⁴ however, has been unable to corroborate this work. Although this evidence is difficult to evaluate it probably is best summed up in the very recent publication of Nye, Zerfas and Cornwell.¹⁵ While they found monilia in many diseases, the fungus was more prevalent in cases of achylia gastrica. They state also that the number of patients with pernicious anemia in which organisms were isolated from the stools and gastric contents was no greater than in the other forms of anemia in which achylia gastrica was present. They concluded that the monilia fungus was probably unimportant etiologically both in sprue and in pernicious anemia.

Just as the clinical similarity of sprue and pernicious anemia started the investigation of monilia, so did the clinical likeness of pellagra suggest a deficiency disease. Goldberger's work on pellagra is well known and likewise is his recommended diet containing the pellagra preventing vitamin. Koessler^{16 17} recently advanced evidence for the theory that pernicious anemia may belong to the class of diseases in which there was a deficiency of vitamins and he attempted to explain the symptoms referable to the different systems on the basis of a lack of one or more of these substances. He therefore fed to his patients a diet high in vitamins and well balanced in every other respect. These diets contain liver and kidney and striking results were obtained. Unfortunately, for the significance of his work, it has since been shown that diets containing these substances are curative, regardless of their vitamin content.

At the last meeting of the Association of American Physicians McCann reported a case of a woman who had, from choice, existed for several years on a diet consisting mainly of carbohydrates. This woman developed a condition similar to pernicious anemia, although it was accompanied by an edema like that seen in starvation. McCann was inclined to consider this as evidence of a relation between dietary factors and the causation of pernicious anemia.

Whipple's¹⁸ work on the effects of diets and drugs on blood regeneration was the starting point for the recent rapid advances in the understanding and treatment of pernicious

anemia. He bled dogs and tested the blood regenerative properties of many different substances. As is well known, he discovered that liver had the most profound influence. Although the conditions produced in his laboratory animals differed in many respects from those of pernicious anemia, the administration of liver to patients was started by many physicians, among whom was Minot, of Boston. At the end of two years' trial Minot and Murphy¹⁹ were able to announce the brilliant results which formed the basis of our present treatment. It is not known just what action the liver has in producing such radical changes. It certainly causes a great increase in the regeneration of red blood cells. It probably checks blood destruction, as is evidenced by the disappearance of the hyperbilirubinemia and of the urobilin from the urine.

The liver has been chemically analyzed in an attempt to isolate the active constituent. A substance has been found which probably is a small protein molecule. It contains no fat, no carbohydrate, very little sulphur and what is perhaps more surprising, no iron.²⁰

The work of Hart recently reported at Ann Arbor should be mentioned. He produced anemia in experimental animals by feeding them an insufficient diet. In one group of the animals he added inorganic iron compounds to the diet without obtaining significant therapeutic results. To a second group he gave ashed vegetables (lettuce and spinach), after having determined that those vegetables when fresh produced good results in his anemic animals. To these ashed contents he added the inorganic iron and in this group of animals he obtained striking therapeutic results. Suspecting that there were some traces of copper in the solution of his ash substance, he added small amounts of copper to the iron and fed such a compound to a third group of experimental animals. In this group he obtained just as striking results as he had obtained in the second group. The presence of copper has never been demonstrated in the liver extract. The work of Hart needs confirmation. If substantiated, it adds both to the interest and to the mystery of blood regeneration. It has at the present time no direct bearing on the etiology of pernicious anemia.

The gastro-intestinal symptoms of pernicious anemia are constant and appear early. They may be present for months before the anemia has become severe. Their possible etiological significance was mentioned even by the early English workers. The sore tongue is characteristic; the gastric mucosal atrophy is fairly constant and the diarrhea only adds

more evidence of the involvement of the entire tract.

Severe anemia is present in other conditions in which achlorhydria is a factor. Examples of this are seen in gastric carcinoma, pellagra and sprue. It is possible that hydrochloric acid is necessary in the proper preparation of food stuffs in the digestive system and that lack of it may cause serious blood stream manifestations. Striking improvement from pernicious anemia has been reported in cases in which large doses of hydrochloric acid form the only treatment.²¹

In this connection the recent report of Castle before the Society of Clinical Investigation is of interest. He fed to a group of normal individuals an adequate regular diet, with no special consideration of vitamins or other constituents. It contained no liver. Allowing time for partial digestion of the food, he pumped the stomachs of these normal digestors. He then fed to pernicious anemia patients by tube, this partially digested food stuff. Although his results were less dramatic than those obtained with a liver diet he noted quite definite clinical improvement in six of his seven cases. His work was not complete, his series not large enough. If confirmed, however, it is of the greatest importance in our understanding of the etiology.

CONCLUSIONS

Radical advances have been made recently in our knowledge of pernicious anemia. Previously unheard of factors have been drawn into the picture. We know some of the most important circumstances which are concerned with its etiology, but there are still many important gaps in our knowledge of the fundamental cause. We cannot evaluate the constitutional factors. The recent knowledge concerning dietary deficiency does not exclude nor render invalid the work of Kahn and Torrey on bacterial toxin. Although the improvement resulting from liver treatment is unquestionable, we do not yet know exactly the nature of the liver constituents which are responsible; neither do we understand how this substance acts nor where its primary effects are wrought.

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[The following article was published in our December, 1928, issue but Tables 1 and 2 were omitted from that number. These tables are a feature of major importance in the study of tuberculosis in St. Louis and for that reason we republish the article in this issue. Ed.]

TUBERCULOSIS IN ST. LOUIS

ANALYSIS OF DEATHS FOR 1927, WITH REFERENCE TO AGE, COLOR, SEX AND TYPE OF DISEASE

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ST. LOUIS

Every practicing physician in Missouri must of necessity be interested in tuberculosis because as an infectious disease it draws an annual death toll in the United States, barring pneumonia, three times that of the total from all other infectious diseases combined, including small-pox, scarlatina, chicken-pox, measles, mumps, diphtheria, bubonic or pneumonic plague, leprosy, etc.

Because of the chronicity and prevalence of tuberculosis we tend to become "numb" to alarm from its existence. Nevertheless, it killed 89,268 people in 1925, according to the mortality statistics for the registration area in continental United States, in comparison with 2 from bubonic and pneumonic plague, and 30 from leprosy, despite the fact that bubonic plague and leprosy have incited terror through all the ages. Because of its ubiquity, its chronicity, its protean manifestations, the age period of its prevalence, the stupendous economic cost, the medical and sociological factors, and the obscurity of the infection, tuberculosis remains the most highly technical and specialized problem in public health practice.

I fully realize the difficulty of making figures and tables interesting. Still, a glimpse of the following tables gives a bird's-eye view in brevity of just what is going on in the City of St. Louis and they are well worth study from an educational point of view. You will note in Table 1 and Table 2 the type of tuber-

Table 1. Deaths From Tuberculosis for 1927 According to Type and Age, St. Louis

		FEMALE																													
		Under 5		5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total												
Age—Years	.....	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	
Pulmonary Tuberculosis	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Complicated With Tuberculosis of—	.....																													
Meninges or Central Nervous System	.....	3	1			4	3	3	1			1	1			1											4	1		
Intestines or Peritoneum	.....																										13			
Vertebral Column	.....		1																									1		
Joints	.....																											1		
Bones	.....					1	1																					2		
Lymphatic System	.....			1							1	1															1	3		
Genito-Urinary System	.....							1		1																	1			
Other Organs	.....	1							1	1																	1	2		
Tuberculosis of Other Structures—Uncomplicated—	.....																													
Respiratory System	1	3	1	1	5	14	19	23	21	29	18	26	18	9	12	11	9	5	1	9	1	6	9	1	6	4	1	155	108	
Meninges or Central Nervous System	.....	3	3				1		1																			5	3	
Intestines or Peritoneum	.....							2	1				1	1												1	1	6	3	
Vertebral Column	.....				1																							2		
Skin	.....						1																					1		
Bones (Vertebral Column Excepted)	.....																											1		
Lymphatic System	.....		1																									1	1	
Genito-Urinary System	.....																											2	1	
Miliary Tuberculosis	.....	1	2				1	3	2	1			1	1	2		1											5	10	
Total	9	11	2	1	2	7	22	31	24	33	20	27	20	11	15	13	12	6	1	13	1	6	11	1	7	1	4	1	198	136

Table 2. Deaths From Tuberculosis for 1927 According to Type and Age, St. Louis

		MALE																																
		Under 5		5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total															
Age—Years	.....	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C				
Pulmonary Tuberculosis	.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Complicated With Tuberculosis of—	.....																																
Meninges or Central Nervous System	.....	1	1					2	1		1		1	2																			
Intestines or Peritoneum	.....		1					2	1		1		2	1	2		1	1															
Vertebral Column	.....							1																									
Bones	.....							1																									
Lymphatic System	.....					1								1																			
Genito-Urinary System	.....											1	1																				
Other Organs	.....																																
Tuberculosis of Other Structures—Uncomplicated—	.....													1																			
Respiratory System	1	1	2	2	1	5	9	19	15	21	23	23	17	30	24	34	9	32	6	27	2	25	22	2	13	1	6	7	1	267	113		
Meninges or Central Nervous System	.....	3	1						2	1			1																				
Intestines or Peritoneum	.....								1	3		1																					
Vertebral Column	.....							1	1																								
Joints	.....					1																											
Genito-Urinary System	.....																																
Miliary Tuberculosis	.....	1	3			1	5	2	2	1		3	2	2	1	1	1																
Total	6	6	3	2	1	8	5	12	26	20	28	24	25	20	32	26	39	12	35	12	30	3	28	1	23	3	15	1	6	7	1	309	146

culosis draining St. Louis of its young manhood and womanhood.

These tables were compiled from the certificates of death from tuberculosis in St. Louis during 1927. They show the distribution of tuberculosis in 789 deaths—the total for 1927 being 790 deaths. This method of analysis is patterned after that used by the United States Bureau of Census and furnishes this information in brief form. It is not possible to compare these findings with similar ones from other cities, or even with St. Louis for preceding years, for I have not found such records to be available.

Similar tables are found in the United States census report for 1925, although in view of the rapid drop in death rate from tuberculosis no conclusion could be drawn from the comparison of such findings with ours for 1927.

Some idea of the rapid drop in death rate

from tuberculosis will be obtained from the following:

St. Louis	1927	1926	1925	1924	1923	1922
Pulmonary	708	768	774	780	799	828
Extrapulmonary	82	78	73	96	91	113

The most outstanding fact in this analysis is the high death rate among negroes. This is shown in a most striking way in Table 3.

DEVELOPMENT OF CLINICAL OR ACTIVE TUBERCULOSIS

That an original tuberculosis infection increases resistance to superinfection or reinfection cannot be denied. Observations on both human cases and on experimental animals permit no other decision. Man once infected shows some degree of increased resistance as long as the original infection persists. For example, if ten organisms are required to cause primary tuberculous infection, it would

Table 3. Comparison of the death rate for negroes with that for whites shows that tuberculosis kills five negroes to one white.

Cases	1927, St. Louis		Population	
			White, 749,000.	Colored, 90,000
452	Death rate	white	per 100,000 Population	Pulmonary 60.3
256	Death rate	colored	per 100,000 Population	Pulmonary 284.4
38	Death rate	white	per 100,000 Population	Extrapulmonary 5.0
44	Death rate	colored	per 100,000 Population	Extrapulmonary 48.8
490	Death rate	white	per 100,000 Population	All forms 65.4
300	Death rate	colored	per 100,000 Population	All forms 333.3
708	Death rate	white and colored	per 100,000 Population	Pulmonary 84.4
82	Death rate	white and colored	per 100,000 Population	Extrapulmonary 9.7
790	Death rate	white and colored	per 100,000 Population	All forms 94.1

in turn require more than ten organisms to cause supertuberculous infection. This fact can be demonstrated by actually counting the organisms for experimental animals. It is furthermore generally accepted that the reaction of the tissues to tuberculous infection is modified by the existence of the primary infection causing an allergic state. This modified reaction or allergic state leads to overcoming the newly introduced tubercle bacilli, or, if superinfection actually takes place, may lead to necrosis at the site of the superinfection.

It is only fair to assume that most of us receive a first infection from tubercle bacilli of quantity and virulence that we hold in check or completely overcome. There is no doubt that many first infections are of limited duration, caused by few germs which are in turn overcome and leave the body free from tuberculosis. Dr. Linsly Williams¹ considers that 90 per cent. of adults in civilized urban communities have at one time or another received at least a primary infection with *B. tuberculosis*.

AGE INCIDENCE OF TUBERCULOSIS

This subject has been excellently discussed by Krause under the title "Human Resistance to Tuberculosis at Different Ages."² Adults are more resistant to tuberculosis only because they are more tuberculous.

That heredity has its influence on the occurrence of tuberculosis is rather well fixed in the mind of laymen. Nevertheless, one cannot deny that the child's parentage establishes its station in life with its degree of poverty, its relative malnutrition, and very often its necessity for early employment during periods of physical growth, all of which modifies the soil for the invasion by *B. tuberculosis*. Still, these influences cannot be looked upon in the sense of true heredity; so much more do these influences figure when children are born to parents suffering from open pulmonary tuberculosis, for this disease occurs 6 to 9 times more frequently in homes with open cases than in homes of healthy families. It becomes there-

fore purely a matter of environment and not a matter of heredity for the white race. It has been amply shown that it is the droplet infection from open cases that spreads tuberculosis in the home. These facts have been so fully appreciated by the officials of Chicago that a law enacted reads as follows:

No child under the age of sixteen years of age shall live in the same home, apartment or other place of abode or habitation occupied by a person suffering from active or open pulmonary tuberculosis (consumption).

The age occurrence in relation to age death rate has been an inexhaustible subject for students of tuberculosis. Children offer new soil, nevertheless they show fewer infections, no doubt because of less extensive exposure. Adults have greater exposure and at the same time use more bodily energy to the point of fatigue, thus explaining the higher incidence in adults. It has been well stated that, "We would not minimize the influence of overstrain; it is, we believe, the most potent immediate contributing factor in the origin and development of active tuberculosis."

One cannot dispute that the age of infection is a factor for Hempelmann³ has shown that 78.7 per cent. of children so infected in the first year of life died from tuberculosis within a year following diagnosis. In a series of 130 cases with pulmonary tuberculosis under two years of age Hempelmann showed a mortality of 68 per cent. although some of the children were living after 4 or 5 years. Early infection so often comes from an open case saturating the atmosphere in the home with frequent and large doses of tubercle bacilli that I am inclined to attribute the high infant mortality to this fact rather than to the decreased resistance of the child.

SEX INCIDENCE OF TUBERCULOSIS

Drolet,⁴ in his review of mortality from tuberculosis in New York City for the last quarter century, has found that the mortality decline has been greater among children than among adults. "Tuberculous cripples, hunchbacks, and children with neck scarred from

1. Williams, Linsly R.: *Am. Rev. Tuberc.* 18:249, 1928.

2. Krause, A. K.: *Am. Rev. Tuberc.* 11:303, 1925.

3. Hempelmann, T. C.: *Am. Rev. Tuberc.* 1:99, 1917.

4. Drolet, G. J.: *Am. Rev. Tuberc.* 11:292, 1925.

adenitis are becoming a relative rarity in New York City. . . . In children under five the tuberculosis death rate each year in New York City is practically always higher among boys than girls. . . . But between the ages of five and ten . . . the rate . . . is generally about the same in both. . . . Among girls between 10 and 15 the rate is greater among girls than boys. . . . The greater strain attendant to the development of puberty must of course be responsible among the girls and once more, at least in approaching adult life, we see the common result of tuberculosis hatching out whenever too great a strain is put on certain individuals' resistance."

Boys on the other hand will reach a period of greater stress when they go out to work or enter industry a few years later and show then a corresponding rise in death rate which exceeds that of women for similar ages.

BOVINE TYPE IN HUMANS

It is exceedingly difficult to estimate the extent of bovine type of infection occurring in human beings. The studies of Park and Krumwiede are very instructive in this connection. They found in a series of cases that from birth to six years 73.5 per cent. were from the human type of bacillus and 26.5 per cent. from the bovine type of bacillus; from 6 to 16 years 75 per cent. were from human bacillus and 25 per cent. from bovine bacillus; over 16 years 98.7 per cent. were from the human bacillus and 1.3 per cent. from the bovine bacillus. In England, Cobbett estimates that 6 per cent. of all deaths from tuberculosis are from the bovine type of bacillus. It is of great significance that many large cities now require milk to come from tuberculin tested cattle.

FURTHER PREVENTION AND CONTROL OF TUBERCULOSIS

Early diagnosis is the key to the tuberculosis problem. I feel that too little attention is paid to complaints of "pains in the chest," or pleurisy, the cough "that hangs on," and the "spitting of blood," any one of which indicates the need of an X-ray examination and observation of the patient for a considerable period of time. It may be possible that the use of Bacillus-Calmette-Guérin (B. C. B.) will be of great aid in controlling this disease.

When once ill from active tuberculosis there are two main great objectives. The one is to prevent giving the disease to another, and the other objective is to recover. Delay in diagnosis keeps the patient in the sanatorium just that much longer and renders recovery less certain.

PRURITIS

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WEST PLAINS, MO.

These cases occur in every doctor's practice, but for the last two or three years I have had an unusual number of them. Up to a year ago I struggled along with them as best I could. The textbooks are literally full of elaborate prescriptions, their very number implying that there is little help in any of them. For a good while I have noted that many of my diabetic cases had pruritis. Later I came to find that many of my pruritic cases had more or less sugar in their urine, but not all. Some had not even a trace of sugar. Another fact I noted was that as soon as I put my diabetic patients on insulin the pruritis was incidentally relieved. But, as I said, all pruritic patients do not have sugar in the urine by any means. More than a year ago a man came to me for relief of a very severe pruritis ani. The case proved to be unusually obstinate. I ransacked my whole library for help but got none. Prescriptions? Yes, by the hundreds. For half a foot around the anus the patient had scratched until the skin was as raw as a piece of beef. The application of an ointment costing \$2.50 an ounce would keep him comfortable for an hour or two. He lost his appetite, lost weight, became extremely nervous and altogether miserable. I remembered that my diabetic cases, who also had pruritis, yielded promptly to insulin, but there was not a trace of sugar in his urine. I had no authority for giving him insulin. However I took up the matter of insulin treatment with him and told him of its indications and dangers (or supposed dangers), the symptoms of over dosage, etc. He was so desperate that he would have agreed to anything, so after getting him to assume all responsibility I put him on insulin. The result was miraculous. After three days the itching was gone to return no more. I used two 10 cc. 20 unit bottles, but I don't think the last bottle was necessary.

I have had quite a few cases of pruritis since then which showed no sugar in the urine, and I have unhesitatingly put them on insulin. I have yet to see any bad effects from the use of it and in every case I have had the same gratifying results.

Just a few days ago a man came to me with pruritis scroti. His scrotum was swollen the size of a quart cup and his penis as large as a man's wrist. Both were scratched perfectly raw. I found only a trace of sugar in the urine. A few days on insulin and he had no further trouble. One thing is sure—if insulin will cure pruritis we have solved one of the most troublesome problems in therapeutics—for me at least.

WASHINGTON UNIVERSITY CLINICS

SCOPE AND PURPOSE

Beginning with this number there will be published in *THE JOURNAL* each month articles which will be representative of the clinical activities of the group of hospitals affiliated with Washington University. At present these include the Barnes Hospital, the St. Louis Children's Hospital, St. Louis Maternity Hospital, the McMillan Eye, Ear, Nose and Throat Hospital (under construction), the Mallinckrodt Radiological Institute (under construction) and the Washington University Dispensary. The reports will consist of, first, the more important cases that have been presented at the Friday Morning Clinical Conference, a general meeting which has been held at Barnes Hospital for the past four years and which is open to the medical public; second, it will include an account of a few of the most significant autopsied cases which are accumulating in the services of the hospitals associated with Washington University; third, there will be descriptions of new diagnostic and therapeutic procedures and evaluations of such of these as are still on trial; last, there will be reports of special clinical meetings and demonstrations which may be held in the hospitals from time to time.

It is not intended in this series of records to present cases in full detail. They cannot be considered as case reports in the ordinary sense. They will be presented very much as they were originally shown at the conferences or meetings with such discussion by members of the staff as may seem pertinent and of general interest. As a rule, cases in which the diagnosis is still in doubt will not be included. Although rare and unusual cases will be featured, many examples of common disease will be considered in order that the most recent methods of diagnosis and treatment may be emphasized and discussed. No attempt will be made to furnish anything approaching complete lists of references to the literature. In many of the reports however such references will be included as may aid the reader in further study of the subject under discussion.

CASE I. MYXEDEMA WITH CARDIAC DECOMPENSATION AND HYPERTENSION WHICH DISAPPEARED UNDER THYROID MEDICATION.

From the Medical Service of Barnes Hospital. Presented by Dr. Charles Duden at the Friday Morning Clinical Conference.

A white woman of 58 entered the hospital on January 26, 1928, because of weakness,

shortness of breath on exertion and obstinate constipation. She had been married for 36 years, had had five children and two miscarriages. All her life she had been troubled with constipation which had become more obstinate following the menopause four years before. For many years she had noticed some shortness of breath on exertion. With the menopause this became more distressing and was associated with palpitation and slight edema of the ankles. For four years her skin had become rougher and dryer with considerable scaling. She developed a puffiness of the face and became more and more sleepy. Her appetite remained good and she gained about thirty pounds in weight during the four-year period. She was profoundly discouraged. Her family had been told that she was hopelessly ill with heart trouble and high blood pressure.

Important findings in her physical examination were marked obesity, a harsh masculine voice, thick, dry, scaly skin; puffiness of the face and a stupid expression well shown in the accompanying figure. Her hearing was de-



Fig. 1. Patient at time of admission to hospital.

fective. Her heart was enlarged. As is shown in the X-ray, the enlargement was chiefly transverse. Her abdomen was distended and it was thought that a fluid wave could be demonstrated. The liver was enlarged one finger breadth below the costal margin. There was pitting edema of the skin of the extremities. Blood pressure was 180/130. Blood count was normal. Phenolsulphonephthalein excretion 25 per cent. Nonprotein nitrogen, 25 mgm. Urine showed a small amount of albumen with a few hyaline casts. Wassermann



Fig. 2. X-ray of thorax taken at time of entrance to hospital showing increased transverse diameter of the myxedema heart.



Fig. 3. Patient after six weeks of treatment.

negative. Basal metabolism minus 35 per cent. An electrocardiogram at the time of admission showed a rate of 90 and a P-R interval increased to 0.18 sec.; the "T" wave was inverted in all leads and the Q R S complexes were slurred. The electrocardiographic picture was that which has been described as characteristic of the heart in myxedema.

Although a diagnosis of myxedema was made it was thought possible at this time that the apparently serious cardiac involvement and the high blood pressure might be evidence of a separate condition, in no way associated with the hypothyroidism. After about ten days of rather cautious thyroid administration the patient began to improve rapidly. The remarkable changes in her appearance are sufficiently shown in Fig. 3. Her voice became feminine in character and lost its harsh quality. Her hearing improved remarkably. Her blood pressure fell from 180/130 to 130/85. The change in the size of the heart is indicated in Fig. 4. Her drowsiness disappeared. In the electrocardiogram the P-R interval changed to 0.12 sec.; the heart rate increased to 112 per minute; the "T" waves became diphasic in lead 1, and upright in leads 2 and 3. Albumen and casts disappeared from the urine.

For several months she continued her treatment and was frequently observed in the Washington University dispensary. The blood pressure remained normal and there was no return of the symptoms of cardiac decompensation or of myxedema. In July, 1928, however, she became ill with some minor infection. Upon ad-

vice of her physician she stopped her thyroid medication. After a few weeks she started the treatment again but it was taken desultorily and in insufficient dosage. In November, 1928, she returned to the dispensary with the appearance of advanced myxedema. At this time her blood pressure was 200/140. There was pitting edema of the ankles although the heart showed no notable enlargement. The treatment with thyroid again caused a fall in blood pressure and disappearance of the edema and of hypothyroidism.

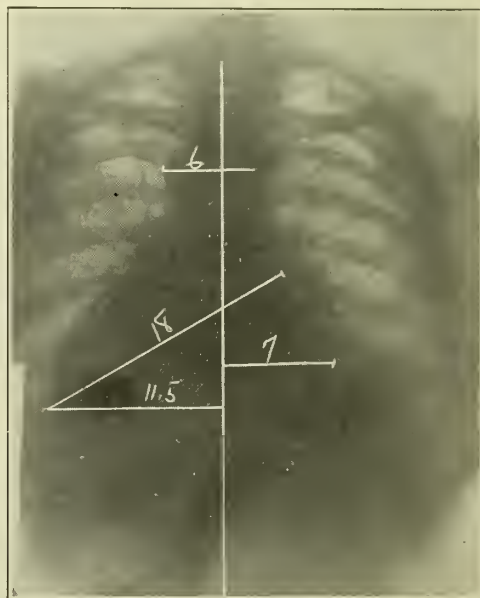


Fig. 4. X-ray of thorax after six weeks of treatment showing change in size and shape of heart.

DISCUSSION

DR. DAVID BARR: This case is remarkable chiefly because of the arterial hypertension in the presence of almost complete myxedema and because of the prompt effect of thyroid medication in reducing the blood pressure to normal.

Arteriosclerosis is a frequent accompaniment of long standing myxedema. This was observed in many of the early cases collected by the Myxedema Committee of the London Clinical Society.¹ The evidence has recently been reviewed by Fishberg.² Serious damage of the kidneys is also not unusual. The majority of cases have shown albumen and casts. It is particularly interesting that the first patient of Ord,³ who named the disease, was reported to have died of granular, contracted kidneys. Many clinical studies and pathological examinations have demonstrated arteriosclerotic changes in the kidneys. The damage to the heart is perhaps more generally recognized. The so-called myxedema heart first described by Zondek⁴ in 1917 has recently been most adequately considered by Fahr,⁵ of the University of Minnesota. The characteristic changes are almost exactly those which appear in our patient. The heart is enlarged in a transverse direction. The electrocardiogram shows a prolongation of the interval between auricular and ventricular contraction, an inversion of the "T" waves in all three leads, small "P" waves and a slurring of the Q R S complex. That the coronary vessels may become involved is apparent both from pathological studies and from the frequency with which angina pectoris is observed in myxedema patients.

In spite of these extensive arterial, renal and cardiac changes, high blood pressure is not frequent in myxedema. In the classic descriptions of the disease it is generally stated that there is a considerable hypotension, a fact easily confirmed by a perusal of the innumerable case reports in the literature. Moreover, thyroid medication ordinarily causes a prompt elevation of the blood pressure to normal.

In our patient treatment with thyroid preparation apparently had the opposite effect of reducing a high blood pressure to a normal level. This is not altogether surprising. Remarkable improvement of cardiac and renal manifestations in myxedema ordinarily follow thyroid medication and lowering of a coexisting hypertension might be expected to accompany the other favorable changes. As a matter of fact however actual observations of this effect on high blood pressure in myxedema are not readily found in the literature. Percy⁶

reported lowering of high blood pressure and improvement in renal disease following thyroid medication. His patients however were not diagnosed as myxedema. Bowen and Boothby⁷ found that the renal condition of cases with coexisting nephritis and myxedema were greatly improved by thyroid treatment. Neither of their cases had high blood pressure.

The favorable changes occurring in the heart of our patient after thyroid administration correspond to those observed by Zondek and all who have since studied the subject. It seems possible that the mucinous edema affects the cardiac musculature and that unless the coronary arteries have undergone damage the heart after treatment may return to practically normal conditions. Thyroid medication however is by no means without danger in patients with cardiac damage. The increased metabolism undoubtedly throws added work on the heart and serious accidents may occur from too rapid administration of the drug. An example of this was reported by Sturgis and Whiting⁸ in their excellent article on the treatment and prognosis of myxedema.

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CASE II. ILLUSTRATING THE IMPORTANCE OF A SHIFTING MEDIASTINUM IN THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

From the Chest Service.

Presented by Dr. J. J. Singer at the Friday Morning Clinical Conference.

In April, 1928, a white girl of 23 was referred to the chest service of Barnes Hospital by Dr. W. J. Bryan, of the Missouri State Tuberculosis Sanatorium, Mount Vernon, for thoracoplasty. She had been in good health until December, 1925, when she began to suffer from a productive cough, afternoon fever, shortness of breath, and pain in the right side of the chest. In April, 1926, her condition was diagnosed "pulmonary tuberculosis" and she was sent to the State Sanatorium. She was found to have large cavities in the right lung. (Fig.

1.) During the following three months she had five severe hemorrhages. In September



Fig. 1. X-ray of thorax before pneumothorax was performed showing location and extent of cavities in the right lung.

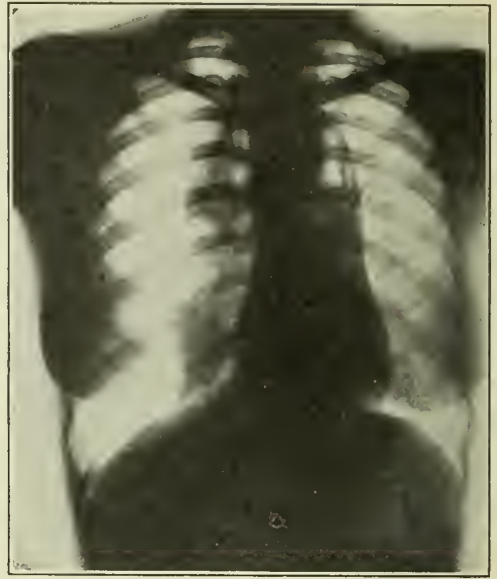


Fig. 2. Position of heart and mediastinum with large pneumothorax in right pleural cavity.

artificial pneumothorax was instituted and caused marked improvement. Her symptoms however did not entirely disappear and it was noted that adhesions prevented a complete collapse of the lung. She was advised that more effective collapse was desirable, that more complete pneumothorax would not complete this, and that thoracoplasty might be necessary.

At Barnes Hospital examination showed a right-sided pneumothorax with several shoe-string adhesions running from the upper lobe of the lung to the lateral chest wall. The lung was fairly well collapsed and two small, rather flattened, cavities were seen near the mediastinum. The left lung showed only slight involvement. There was no evidence of tuberculosis in the larynx or gastro-intestinal tract.

At the first examination the lung was seen to be partially collapsed by pneumothorax. The upper lobe was seen to be expanded, while in the lower lobe there was atelectasis and collapse of the bronchi due to the fibrosis following pneumothorax. The air pocket was small and the heart and mediastinum were found entirely in the right pleural cavity. After increasing pressure on the right side by injecting more air, the mediastinal structures and heart were pushed to the left side. The position of the mediastinum is shown in Fig. 2. This occurred after each refill. Under the fluoroscope the mediastinum and heart shifted with a pendulum-like motion from side to side with change in the phase of respiration. On inspiration, excursion would be to the right and

on expiration to the left. Figs 3 and 4 show the variation in the position of the heart during respiration. In each figure the midline is represented as well as the limits in the transverse diameter of the heart. An electrocardiogram taken during the phases of deep respiration also showed evidence of displacement of the heart.

The question was raised as to the advisability of thoracoplasty.



Fig. 3. X-ray of thorax with injection of small amount of air in right pleural cavity showing position of heart and mediastinum during deep inspiration.

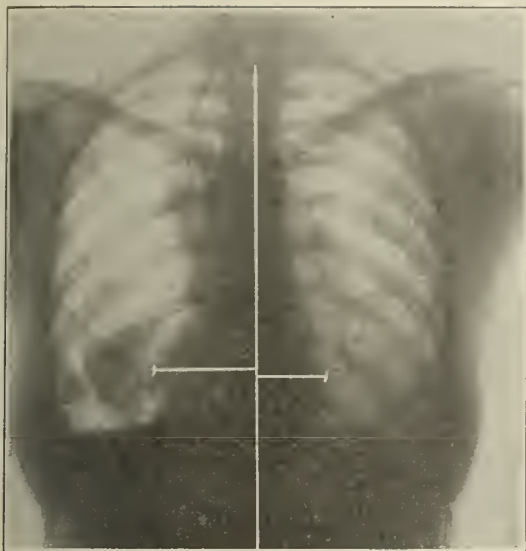


Fig. 4. Same as Fig. 3, showing position of heart and mediastinum during complete expiration.

DISCUSSION

In many respects this patient presents a picture favorable for thoracoplasty. She has had immense cavities in the apex and base of the right lung. The left lung is practically uninvolved. There are no signs of laryngeal or intestinal tuberculosis. Thoroughly performed pneumothorax has greatly improved the condition but has failed to cure it. One might think that the improvement with partial collapse by pneumothorax would augur well for more complete collapse treatment with thoracoplasty.

The mediastinum however shifts from side to side with slight changes in pressure. This is evident during respiration and still more evident whenever air is introduced in increased amounts in the right pleura. It is also significant that when larger amounts of air are introduced the mediastinum is held in a fixed position in the left thorax. In experimental work in dogs it has been found that the mediastinal contents are freely movable. This is true also in normal individuals who have not suffered any disease of the lungs. Under these conditions any change in pressure in one pleural cavity is reflected in large degree to the other.¹

Ordinarily the patients in whom the question of therapeutic pneumothorax or thoracoplasty is considered have had long standing inflammation within the thorax. Whether this is due to tuberculosis, bronchiectasis, abscess or mediastinal lymph nodes, it usually results in a partial fixation of the mediastinum.

It also causes, as a rule, partial or complete obliteration of the pleural cavity on the diseased side. Although in our patient there is extensive tuberculous disease, the mediastinum remains movable; it will shift to the side where the negative pressure is greatest. The atelectasis of the lower lobe of the right lung and the adhesions in the right side produce in the right pleura an increased negative pressure. This is increased during inspiration. Thus the phenomena shown in Figs. 3 and 4 are easily explained. During inspiration the heart is pulled into the right side of the chest (Fig. 3). When the patient expires deeply (Fig. 4) the heart shifts to the opposite side, approximately to a normal position. It also explains why the introduction of a little air which reduces the negative pressure in the right pleural cavity immediately moves the heart and the atelectatic lung over to the opposite side of the chest (Fig. 4).

This case illustrates in an unusual manner the disadvantages and dangers of a shifting mediastinum in surgical collapse of the lung. Too ambitious treatment with pneumothorax may produce so much pressure on the well lung as to cause cessation of respiration. On the other hand, a small amount of air introduced into the right pleura kept the heart in its proper position in the thorax and maintained the patient in a state of comfort. Dr. Evarts Graham and I agreed that treatment should be limited to this procedure.

EFFECT OF PREVIOUS ADMINISTRATION OF ANTITOXIN AND TOXIN-ANTITOXIN ON SERUM REACTION

Previous injection of antitoxin seems not to affect future serum administration markedly, as almost as large a percentage of serum reactions occurred in patients not having received previous serum injections as in those so treated. Of the few patients seen by Sophie Spicer, New York (*Journal A. M. A.*, June 2, 1928), with marked serum reaction, none happened to have received antitoxin prior to the present illness, while those patients with a history of previous antitoxin, when exhibiting a serum reaction, had it in a mild or moderate form. Previous administration of toxin-antitoxin appears to have little or no effect on subsequent serum treatment. Only four of the twenty-eight patients in this series who gave a history of having been immunized against diphtheria with toxin-antitoxin had a serum reaction. This small series of cases seems to prove that toxin-antitoxin does not sensitize to future serum injections to such an extent as to produce any appreciable effect. The fact that these patients all had scarlet fever suggests the value of toxin-antitoxin, as persons once immunized against diphtheria with toxin-antitoxin are usually protected against that disease. The force of this is somewhat lessened by the fact that the patients with diphtheria were on the average younger than those having scarlet fever. The reason for the comparatively mild type of serum reactions may be the method of treatment.

1. Graham, Evarts A.: Alterations in Intrapleural Pressure and Their Significance. Lecture presented before the Harvey Society. *Medicine*, 3:417, 1924.

THE JOURNAL

OF THE

Missouri State Medical Association

JANUARY, 1929

EDITORIALS

PATHOLOGY, PATHOLOGISTS AND YOUR LABORATORY SERVICE

Hippocrates, born 470 B. C., the first to leave written evidence of that branch of medicine termed prognosis, is generally termed the "Father of Medicine." Morgagni, the "Father of Pathology," the first to understand and to demonstrate the absolute necessity of basing diagnosis, prognosis and treatment upon an exact and comprehensive knowledge of anatomical conditions, wrote a treatise on pathology, "The Anatomical Concept," about 1750. Matthew Baillie in 1783 made the first attempt to treat pathology as a subject in and for itself in his book "Morbidity Anatomy." Rokitsky, 1804-1878, professor of the first organized department of pathology, that at the University of Vienna,—and who performed his thirty thousandth autopsy in his fifty-eighth year, is known as the "Father of Gross Pathology." Virchow, who by personal vigor in his teaching at the autopsy table lifted Germany from a position of the lowest level in medicine to that of the leader, published his monumental work "Cellular Pathology" in 1858 and justly earned the title "Father of Modern Cellular Pathology."

If these men, one of whom died only in recent years, could as if by miracle revive and return to the motherly lap of the science they have builded, they would marvel at the very complexities of the pathologist's duties. The complete story of pathology could only be given by reciting the advances in medicine and surgery that have occurred since this subject became a science. Contrast if you will the medical progress from the days of Hippocrates to the 19th century with the rapid strides made since the days of Rokitsky, but especially with the revolutionary changes brought about since the introduction of Virchow's cellular pathology. Today, there are 1,139 possible diagnoses to be made on a given piece of tissue (McCarthy). Can you picture such hazards confronting those in any other specialty?

Pathology is not all science in the sense of "hard boiled" science, nor can it be. Pathology's business is only in part with science; its

function is quite as much with art. Science's prideful concern is with facts and their interpretation, regardless of their applicability. Pathology, on the other hand, is very much concerned with the practical application of facts. Its primary duty is to be of practical help to mankind. Scholarship and research do not represent the end to the pathologist. His duty is much greater, more varied, and more far-reaching. To him the future practitioners, the medical students and interns, must look for a large and important part of their medical training. The general practitioner, internist and surgeon must go to him for tissue diagnosis, various serological, chemical, physical, cultural, and other clinical tests, and their interpretations. To him the coroner turns for his necropsy service and medico-legal aid. Yet with all these sundry duties of such wide variance the pathologist carries on investigative work, but not to the exclusion or sacrifice of practical usefulness.

The competent pathologist must be a man who with a background of science uses his art with skill acquired by special and technical training over and above the requirements of the graduate in medicine. Scientific training and laboratory knowledge cannot take the place of clinical experience and render it superfluous. There are men however who fail to realize that because a man is a physiologist, or an anatomist, or a bacteriologist, or a pathologist, he is not necessarily a competent diagnostician, prognostician, or if you please, a competent physician. Those who hold such opinions are dangerous, and one might say—hopeless.

A pathologist must be a graduate in medicine and should have had hospital training and preferably some practice in the art of medicine. The American College of Surgeons and the American Medical Association in their standardization of hospitals, decree that a hospital must have a laboratory under the directorship of a pathologist who is a graduate in medicine. This implies that he must be capable of meeting physicians in consultation and of giving medical advice. The American Medical Association likewise requires of approved clinical laboratories (commercial) that a pathologist of proper educational attainments shall be the director and that only those directors who are graduates in medicine may give opinions or interpretations on reports.

The American Society of Clinical Pathologists, the junior organization of pathologists, requires for membership that the applicant must be a graduate of medicine, must have served three years apprenticeship or special training in pathology, and must be recom-

mended by two recognized pathologists. The American College of Surgeons and the American Medical Association have set standards that must be met in the way of laboratory service. The societies of pathologists have assumed responsibility for the qualifications of the men to fill these important positions. It behooves the hospitals and the practitioners of medicine and surgery that they utilize the laboratory service to its full advantage and profit by the supertraining that is required of their pathologists.

A careless, improperly trained, incompetent laboratory worker who takes chances and improvises short cuts and easy tests is to be shunned. He is a menace to the profession and to the public and brings disrepute upon work and tests that are of the utmost practical value and often of paramount importance. The pathologist must have the absolute confidence of his colleagues and must honor the trust and responsibility placed upon him.

The pathologist's training points him to be a doctor, a physician, whose duty and ability center upon the prevention and the alleviation of suffering and disease. Yet criticism has been leveled at those who advocate the principle that the pathologist should be encouraged to think clinically,—in terms of the patient, a living and well being. The pathologist should be the central staff man of the hospital and of the clinic group, the chief consultant, the helper in all branches of medicine, and not a test tube washer nor an attendant upon the offals of man.

Is your pathologist a high salaried technician or is he welcomed as your equal—as a consultant, a diagnostician and a prognostician? Is he regularly used and given the privilege of keeping his training alive by seeing patients, or is he called on only to pull the burning chestnuts out of the fire, or to perform an autopsy on some obscure, difficult case, render explanations and then disappear from the scene? Is your pathologist and his laboratory staff shunted off for quarters to some dark, often smelly, non-ventilated, unhygienic basement, or equally undesirable attic space, totally unusable for that or any other good purpose? Or is your laboratory placed where it can be of the most possible service in accessible, properly ventilated and well lighted quarters, preferably near the operating room suite?

When a pathologist is called upon for consultation to study a patient or a specimen and render a verdict and when that is done, is he asked into future conferences and consultations on that patient and is he informed of the ultimate outcome of the individual? He is not, except in rare instances. Does he know the

fate of the patient from whom the specimen came, upon which he gave a diagnosis and prognosis? Rarely. Is that giving him the benefit of seeing cases and following them up or is that developing in him a true sense of prognosis? It is not. Such treatment deprives his future consultants, his colleagues and the public of that great acquisition of knowledge so important in the practice of medicine. Judgment, skill and experience result only as one encounters with reasonable frequency the various diseases, their manifestations and results.

The plea is for an intelligent, considerate use of the laboratory and of the pathologist, a specially trained man of modern medicine, in order that in turn an intelligent opinion may be rendered. If the practitioner must have a history, a complete physical examination, etc., before arriving at an opinion, how much more important it is that the pathologist be given the same information, for often the last word, the ultimate responsibility for a diagnosis, is placed upon him. Diagnostic and prognostic judgment should only be given after an absolutely thorough knowledge of the patient's condition is known. This is as truly applicable to the laboratory worker in interpreting his findings as it is to the clinician.

PATHOLOGICAL EXHIBIT AT THE COLUMBIA MEETING

The outstanding importance of the pathological exhibit prepared and installed by Dr. M. Pinson Neal, Columbia, at the Columbia Session of our Association last year was generously praised by those who had the opportunity to view the collection of specimens. It made such a deep impression upon our then president, Dr. Frank G. Nifong, that he promised to prepare a comment for *THE JOURNAL* upon the practical value of such an exhibit. We now have the privilege of presenting Dr. Nifong's discussion to our readers. It follows:

"As time goes by I am more and more impressed with the necessity of maintaining organized medicine and the importance of our State Medical Association. Among the numerous advantages and benefits the first and most important purpose should be educational.

Our recent spring meeting in Columbia was illuminating and showed us how this purpose might be improved. In addition to several most excellent symposia we were fortunate in having some exhibits and displays of unusual merit. One exhibit I may be pardoned for mentioning in particular. One may not grow older and more mature in *medicus* without

sensing the great importance of pathology and of its continued learning and teaching all through life. Personal experience has impressed me with the greatness and importance of pathology in contributing to the wisdom and valuable service to be rendered by the physician. The importance to the undergraduate is not more than to the graduate on through his professional life. We in Columbia have been peculiarly fortunate in having opportunities to attend necropsies and in having access to a most unusual pathologic display. At our state meeting our members had the opportunity of studying a beautiful and most excellent pathologic display by M. Pinson Neal, M.D., Professor of Pathology, University of Missouri School of Medicine, and his associate, Dudley A. Robnett, M.D., Assistant Professor of Pathology.

The displays of surgical and necropsy specimens in our exhibit space at the meeting headquarters and another group in their teaching laboratory at the medical school elicited universal favorable comment. The five hundred specimens on exhibit represented only the nucleus of their material, regularly used in teaching pathology at the University of Missouri. These specimens represented almost every conceivable anatomic lesion to which man is susceptible. Among those included were lesions of typhoid fever, leprosy, smallpox, actinomycosis, various stages and types of nephritis and of peptic ulcers, pneumonias, cardiac diseases, such as chronic myocarditis, endocarditis, valvular stenoses and insufficiencies, tuberculosis in practically every phase and of almost every organ and tissue, congenital abnormalities and monstrosities, meningitis, thrombosed vessels, gangrene, tubal pregnancies, carcinomata and sarcomata of various organs and tissues including bones, as both primary and secondary manifestations. Among the rare specimens were primary carcinoma of spleen, thyroid, lung, and brain and metastatic carcinomata of the heart, spleen, bones, and brain.

Two conspicuous groups of tumor specimens showed organs involved secondarily from primary breast carcinomata. One gave extreme osseous metastases involving bones rarely, and some not previously recorded. The other showed extreme and extensive metastases in the brain, lungs, liver, intestines, opposite breast, spleen, lymphnodes, kidneys and heart. Tumors of the uterus and ovarian cysts were shown in large numbers, various sizes, types and locations. There was a unique group of a collection of gallbladders including injections, malignancies and stones, the latter of all sizes, colors and mixtures of colors like marble and in numbers up to one specimen containing 3,541 stones.

Meticulous personal care is an essential in

acquiring, preserving and mounting such specimens as are housed in the museum of the Department of Pathology at the University of Missouri. A lay writer, a few years ago, after going through this collection with Dr. Neal, had the following to say in writing of his impressions of the inspection: 'Dr. Neal was most enthusiastic over his specimens, and showed us many and varied diseased organs and was very liberal in his descriptive adjectives of beautiful, pretty colors, wonderful, etc. (just as if such morbid processes could be termed beautiful). He showed a love for his work of art, approaching that of a woman for her first-born.'

Drs. Neal and Robnett are to be highly commended for their extremely interesting and educational exhibit. It was a feature that our state meetings had not had for many years and one never before equalled. One of our illustrious invited guests was seen to go over this exhibit several times, and his remarks upon the quality and the quantity of the specimens shown, we feel, express the sentiment of all those who attended the Columbia meeting. His sentiment was: 'Your men have here a perfect nucleus for teaching medicine, and this collection is enough to justify the beginning of a four-year medical curriculum. I have attended many medical meetings in my years, and I tell you honestly I have never seen a better, a more admirable, or a more valuable collection than here shown.'

This exhibit of pathologic material was one of the high lights of the Columbia meeting. There were always groups of visitors crowded around the specimens and asking questions bearing upon the diseases and processes displayed."

WASHINGTON UNIVERSITY CLINICS —A NEW DEPARTMENT

In this issue of *THE JOURNAL* there appears for the first time a section under the title "Washington University Clinics."¹ This will be included monthly and will present many aspects of the clinical activities of the group of hospitals associated with Washington University. It seems particularly fitting that this publication should be presented in the *Journal of the Missouri State Medical Association*.

To those not closely in touch with the situation the rapid growth and development of medical teaching and investigation at Washington University Medical School must come as a surprise and a revelation. Its history is of great interest. It started in 1891, when the University took over the faculty and inherited

the splendid traditions of the 50-year old St. Louis Medical College. Eight years later it was greatly strengthened by amalgamation with the long-established Missouri Medical College. While Washington University has always been a leader, the period of its greatest accomplishment has been less than 18 years. In 1910, the school was completely reorganized. The interests of Barnes Hospital were fused with those of the University which moved its school and dispensary from the old downtown location to the present site. The St. Louis Children's Hospital soon joined the group and the Isolation Hospital was built by the University. Still more recently the St. Louis Maternity Hospital has become associated. The generous gift of the late Mr. Edward Mallinckrodt has made possible the development of a Radiological Institute, a center for clinical and physical study of X-ray and radium. The large McMillan bequest has been supplemented by many donors and is being used in the development of a hospital and institute for clinical study and graduate teaching of ophthalmology and otolaryngology. This latter perhaps, the only institution of its kind in the world, promises much for the advancement of our knowledge in these important specialties.

Teachers and investigators from all parts of the country have been brought to the school and its hospitals. Clinical investigations of the greatest importance have already been accomplished. We can mention only a few of these, such as the development of cholecystography in the study of diseases of the gallbladder; the elucidation of the principles and the simplification of infant feeding; the contributions to the study of allergy and the development of chest surgery. As so often happens, much of this work is perhaps better known in other parts of the country and, indeed, in the medical world at large than in the district in which the work is being done. The Washington University school today is recognized as one of the great medical centers of the world.

It seems fitting and, indeed, essential that the physicians of this district should be in the closest possible touch with the activities of this great institution and should be thoroughly aware of the personality and teachings of the medical leaders which constitute it. Washington University should be not only a leader in the productive work in medicine, but should be a center for postgraduate teaching and for medical activity and progress in Missouri and the states adjoining it.

The publication of the Washington University Clinics in *THE JOURNAL* marks another

important step in this direction and enables the practitioners throughout the state to enjoy some of the benefits which come to those resident in St. Louis who regularly attend the Friday Morning Clinical Conferences.

PROGRESS IN THE SEROLOGIC DIAGNOSIS OF SYPHILIS

No laboratory diagnostic procedure has been the subject of more investigation than has the complement fixation test for syphilis. The nature of the phenomena is so little understood as to make virtually any test of which it forms the basis difficult to standardize. The variable factors—complement, amboceptor, red blood cells, antigen, the patient's serum and the human equation—are so difficult to control that the test frequently is brought into disrepute. These factors however have detracted but little from the usefulness of this test.

Parallel with the development of the complement fixation test for syphilis, however with less impetus and enthusiasm, has been the precipitation phenomena. The comparatively recent work of Meinicke, Sachs, Georgi and Kahn have brought this test to a very high standard of accuracy. As an outgrowth of several precipitation systems evolved in the last twenty years the Kahn precipitation system is the only test proposed that has had world-wide recognition and which is being used extensively, especially in America. In contradistinction to other precipitation systems the Kahn test has been so perfected that it does not only supplement the complement fixation systems but it can be used alone as a laboratory test in the diagnosis of syphilis.

A survey of some 250 published reports comparing the Wassermann and Kahn reactions reveals that the Kahn test is generally conceded to be equally as efficient in detecting syphilis as the complement fixation test. The many factors causing variable results in the complement fixation test are materially reduced in the Kahn test by the elimination of guinea pig complement, amboceptor, red blood cells and long incubation periods. In this mass of literature certain definite conclusions can be drawn. Practically all of the investigators agree that the Kahn test is simpler of operation, less expensive and less time consuming and as specific as the Wassermann reaction. It is also almost unanimously agreed that the Kahn test is more sensitive in primary and latent syphilis.

There are certain distinct advantages that the Kahn system offers which make the test of universal application. The Kahn system is

readily standardized as only two reagents are used which are so stable that they can be prepared and kept for indefinite lengths of time. Normal salt solution of course can easily be prepared and kept uniform. Kahn antigen is also easily prepared and remains stable indefinitely. Kahn antigen may be so standardized that the product used in all laboratories can be made to possess, practically, the same degree of sensitiveness. This attainment of a universal standard product is considered as a milestone in the serologic diagnosis of syphilis.

Although the Kahn test is considered as a comparatively simple procedure it is fraught with dire possibilities when in the hands of the inexperienced or those who insist on simplifying the test further than the author found safe or practicable. It has been found that the manipulation of the test requires as skilled technicians and as careful supervision by the serologist as does the Wassermann test.

AMERICAN ASSOCIATION FOR STUDY OF GOITER

The American Association for the Study of Goiter will hold its next annual meeting at Dayton, Ohio, March 25, 26, 27, 1929. This Association has had a phenomenal growth indicating that interest has been extensively stimulated in the etiology, the pathology and treatment of diseases of the thyroid gland far beyond the expectations of its organizers.

In 1923, Dr. E. P. Sloan, Bloomington, Illinois, invited a few surgeons whom he knew were interested in goiter work to meet with him at the Sloan Clinic in St. Joseph's Hospital, Bloomington. This was such a successful gathering that before it adjourned plans had been laid for the organization of the American Association for the Study of Goiter. Six months later another meeting was held with a program previously outlined. From this nucleus the Association has grown in popularity by leaps and bounds until at the meeting in Denver in June, 1928, about three hundred attended the three-day session.

The Association was formed as an organization where earnest medical men could come together and present their thoughts and experiences on the etiology and pathology and for the treatment of diseases of the thyroid gland. It always has aimed to establish an open forum where all subjects pertaining to goiter may be presented and fully discussed. It brings those interested in goiter into close personal contact and stimulates their professional interest in this special field. Membership in the Association is by invitation.

At the Denver meeting, Professor Doctor

von Breitner, of Von Eiselberg's Clinic in Vienna, was a distinguished guest, as well as Professor Doctor Lunde from Oslo University, Norway, a physiochemist of international reputation.

The Dayton meeting undoubtedly will be a success and surpass all previous sessions in resultful activities. Operative clinics and dry clinics will have a prominent place in the program. The meeting is being held under the auspices of the Montgomery County (Ohio) Medical Society who will be the hosts of the Goiter Association. All members in good standing of their county medical societies are invited to attend the session.

As the meeting for 1930 will be held in Seattle, Washington, all members of the Missouri State Medical Association who are interested in the work of the Goiter Association are urged to take advantage of the proximity of the Dayton meeting next March and make arrangements to attend. Previous meetings of the Association have been held in Bloomington (Illinois), Chicago, Louisville, Philadelphia and Denver.

The president is Dr. S. D. Van Meter, Denver; president-elect, Dr. E. R. Arn, Dayton; corresponding secretary, Dr. Kerwin W. Kinard, 404 Bryant Building, Kansas City. Members desiring further information on this meeting should write to the president-elect, Dr. E. R. Arn, Fidelity Medical Building, Dayton, Ohio, or to Dr. Kinard.

DISTINGUISHED GUEST FOR JANUARY MEETING KANSAS CITY SOUTHWEST CLINICAL MEETING

The monthly clinical meeting of the Kansas City Southwest Clinical Society at Kansas City, January 22, will hold special interest for members interested in oral surgery. The guest speaker will be William H. G. Logan, M.D., D.D.S., Chicago, Dean of the Chicago College of Dental Surgery, Dental Department of Loyola University. There will be a morning clinical meeting at the Kansas City General Hospital where Dr. Logan will direct the clinic and in the evening he will deliver an illustrated address on "Cleft Palate and Cleft Lip" at the Medical Arts Building. Dr. Logan is a past president of the American Dental Association, the International Dental Congress and of the American Association of Dental Schools. During the war he was chief of the dental division in the surgeon-general's office at Washington, D. C., and had charge of the dental surgery of the entire American army. In May, 1918, he was commissioned colonel.

The Kansas City Southwest Clinical Society

is composed of the Jackson County (Missouri) and Wyandotte County (Kansas) Societies, and they, together with the Kansas City Eye, Ear, Nose and Throat Society and the dental profession in Kansas City and throughout the Southwest, are sponsors for this meeting.

All members of the Association are invited to attend this session of the Clinical Society.

NEWS NOTES

Dr. John O'Connell, Overland, a member of the St. Louis County Medical Society, was elected coroner for St. Louis County at the November election.

Dr. Francis Reder, St. Louis, was the guest of the North Central Illinois Medical Association at its 55th Annual Meeting held in the Gold Room of the Jefferson Hotel, Peoria, Illinois, December 4, 1928. He delivered an address on "Remarks on Postoperative Gaseous Distention of the Intestine, Commonly Known as Paralytic Ileus."

Dr. W. T. Coughlin, St. Louis, gave an address before the Southern Indiana Medical Association at Martinsville, Indiana, October 30, 1928, on "The Cure of Trigeminal Neuralgia." On November 8 he was the guest of the Southern Illinois Medical Association at Mount Vernon, Illinois, and read a paper entitled "Injuries of the Cranium and Brain."

Dr. R. B. H. Gradwohl, St. Louis, sailed for Germany December 12 on the S. S. George Washington to spend six weeks in the laboratory of Professor Schilling, of the University of Berlin. Dr. Gradwohl's visit is in connection with the translation of Professor Schilling's new textbook on Hematology which will be published by C. V. Mosby Company soon after his return. Dr. Gradwohl will study Professor Schilling's new method of differential blood counting in diagnosis and prognosis.

Dr. Tom Sawyer, Kansas City, was appointed commissioner of pensions of the Western Missouri and Eastern Kansas district, November 23, 1928. He succeeds the late Dr. William C. West, Kansas City. Dr. Sawyer is a veteran of the Spanish-American War and was a captain in the medical corps in the World War.

Dr. Fred Bailey, St. Louis, was elected one of the vice presidents of the Southern Surgical Association at its Forty-First Annual Meeting

held in White Sulphur Springs, West Virginia, December 13, 1928. Dr. Ellis Fischel, St. Louis, was elected to membership at the same meeting. The next annual session will be held at Savannah, Georgia.

Dr. Harvey J. Howard, St. Louis, has been appointed a representative of the Missouri Association for the Blind on the committee to award the Robert Johnston essay prize. Prizes are being offered by Mr. Robert Johnston for essays on the prevention of blindness and on the welfare of the blind. The first prize is \$25 and the second prize \$10. Dr. W. H. Luedde, St. Louis, is also a member of the committee.

The town of Calhoun (Henry County), in the western part of Missouri, is entirely without a physician. Calhoun is twelve miles north-east of Clinton, in a good farming community, population 600, and has always supported two physicians. Any member interested may address the Postmaster, Calhoun, Missouri.

On November 15, 1928, Dr. F. H. Brown, Billings, suffered a severe loss by fire which swept a part of the town. Dr. Brown lost his entire office equipment including the records of Christian County Medical Society of which he has been secretary for many years.

Dr. A. P. Munsch, St. Louis, addressed the Marion County Medical Society, at Hannibal, October 5, on "Pernicious Anemia." He was sent by the Postgraduate Committee of the State Association.

The following speakers were sent by the Postgraduate Committee of the State Association to address the Scott County Medical Society, at Sikeston, October 26: Dr. Alphonse McMahon, St. Louis, read a paper on "Relation of Thyroid to Clinical Heart Conditions." Dr. W. C. Gayler, St. Louis, talked on "Obstetrics." Dr. E. J. Goodwin, St. Louis, Secretary of the State Association, and Dr. Emmett P. North, St. Louis, spoke on "Medical Organization."

At the meeting of the 9th Councilor District held in Mexico, November 22, the following read papers: Dr. Alphonse McMahon, St. Louis, "Heart in Relation to Thyroid Disease"; Dr. W. C. Gayler, St. Louis, "Prolonged and Difficult Labor"; Dr. W. E. Leighton, St. Louis, "Diagnosis and Treatment of Cancer"; Dr. M. L. Klinefelter, St. Louis, "Fracture Problems"; Dr. E. P. North, St. Louis, "Industrial Eye Injuries."

These speakers were sent by the Postgraduate Committee of the State Association.

Drs. J. P. Costello and H. G. Bristow, St. Louis, were the principal speakers at a meeting of the Chariton County Medical Society, November 27. Dr. Costello read a paper on "Pulmonary Diseases of Infancy and Childhood" and Dr. Bristow addressed the meeting on "Pneumonia With Particular Reference to Serum Treatment." The speakers were sent out by the Postgraduate Committee of the State Association.

Dr. Noxon Toomey, St. Louis, read a paper before the Lee County (Iowa) Medical Society at Fort Madison, Iowa, December 20, 1928, entitled "Pruritis and Dermatitis of Internal Origin."

OBITUARY

GEORGE HOMAN, M.D.

Dr. George Homan, one of St. Louis' oldest physicians, died November 15, 1928, in the Missouri Baptist Hospital at the age of 82 years, of pneumonia.

A graduate of the old St. Louis Medical College in 1873 he served an internship in the City Hospital. After this service he became dispensary physician and later chief sanitary officer in the city health department. In 1894 following the removal of the health commissioner by Mayor Walbridge, the City Council elected Dr. Homan to the vacancy. For two years he served in this capacity.

As the years passed on we see Dr. Homan president of the St. Louis Medical Society for the year 1906. At that time the St. Louis City Hospital Alumni Medical Association was formed, a very healthy and vigorous *enfant* indeed of the local medical profession. This Association elected Dr. Homan its president for two successive years. The worth of the man was appreciated by the faculty of the old St. Louis Medical College and he was asked to become one of its members. When Dr. Homan died the last of the pallbearers of Dr. John T. Hodgen passed on to eternity.

It was during the last four years that the writer became intimately acquainted with the man who served the medical profession so loyally and so faithfully. An accident while crossing the street resulted in the fracture of his right humerus at the surgical neck. It was a painful injury and caused the doctor's face to mirror an age in excess of his years. After

four months when he was again able to use his arm without much discomfort he had the misfortune of meeting with another accident which resulted in the fracture of his left femoral neck. This accident was caused by a misstep. The result of the fractured neck was a most unhappy one and I regret to state must be largely attributed to the doctor's indomitable will in objecting to the treatment instituted. On account of the patient's advanced age little of a bony union could be expected at best; however a better fibrous union than was obtained had been hoped for.

Months passed into years and the shadows began to deepen perceptibly. The suffering was telling on the patient and the confinement so foreign to his nature obscured many of the finer qualities of this man, causing discontent and dissatisfaction to enter into his life.

It was a sad picture and often as I stood at his bedside did I wonder if the closing chapter of my friend's life would have been different had he been married and enjoyed the peace of a home.

Frequently the doctor bemoaned the fact that nobody ever called on him and then suddenly would say: "Reder, they are all dead and gone; I am living too long and I do not know why. My days of usefulness are over." There was truth in all this and yet I may say the doctor had a few friends left that stood by and saw that he was comfortable.

Dr. Homan was a great reader, classics principally, and it was a blessing that his sight did not fail him. Whenever I wanted a smile from him all I had to do was to take his glasses and wash them. It never failed and it was a most grateful smile, with a nod.

In the different hospitals that sheltered the doctor most of the time during his four years of disability the warmest sympathy and the greatest respect were shown by all who came in contact with him. It was a tribute of gratitude extended to a man whose activities in medicine were appreciated—whose earthly hopes now had vanished.

The closing chapter of Dr. Homan's life was very sad. Those of you who are familiar with the story of Beau Brummel can picture to a certain extent the doctor's exitus,—there was a similarity.

The evening before his death I found him sitting in his rocking chair. He was fully dressed excepting his coat. His vest was buttoned and tucked in his trousers. The suspenders were placed over the vest. His necktie was loose, but showed an effort had been made to tie it. "Doctor, I am going out to the Medi-

cal Society with you tonight," he said in a most pleasant and dignified manner, at the same time seizing my arm in an endeavor to help himself out of the chair. He fell back, his legs too weak to support him. A faint smile played about his mouth. Again an effort was made to get out of the chair with a "We will be late, Doctor," and again he sank back into the chair. Burying his face in his hands he sighed deeply several times and then turned his face to look out of the window. When I told him that he must have rest and that I would help him to bed he was very emphatic in his resentment and waved every effort away. With a nurse we succeeded with some difficulty in getting the doctor to bed. It was the last "good night" for that night the doctor died.

The death of Dr. Homan brings to me these beautiful lines: "When the summer day of youth is slowly wasting away into the night-fall of age and the shadows of past years grow deeper and deeper as life wears to its close, it is pleasant to look back through the vista of time upon the sorrows and felicitations of our earlier years. If we have a home to shelter and hearts to rejoice with us and friends have been gathered together around our firesides, then the rough places of our wayfaring will have worn and smoothed a way in the twilight of life, while the sunny spots we have passed through will grow brighter and more beautiful. Happy, indeed, are they whose interference with the world has not changed the tone of their holier feelings, or broken those musical chords of the heart whose vibrations are so melodious, so tender and touching in the evening of age."

F. REDER.

JAMES ISRAEL TYREE, M.D.

Dr. James I. Tyree, Joplin, a graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1914, died at St. John's Hospital, Joplin, October 25, 1928, following an operation for appendicitis October 5, aged 38. He appeared to be improving shortly after the operation but became critically ill a week later, his condition rapidly growing worse due to complicating nephritis.

Dr. Tyree was born in Carterville, Missouri, November 12, 1890, the son of a pioneer physician. He completed his premedical work at Christian Brothers College, St. Louis, and entered Missouri University where he received his A.B. degree in 1912. After receiving his medical degree in 1914 he went to Kan-

sas City where he was appointed assistant commissioner of health, which position he held for three years. During the World War he was a medical officer in the U. S. Navy for two years, spending most of his time in Florida at the Naval Aviation Station. After the war he continued his studies in Philadelphia, specializing in diagnosis and internal medicine, and in 1920 located in Joplin to practice.

He was a member of the Catholic Church and the Phi Kappa Psi and Nu Sigma Nu fraternities. He served on the staffs of St. John's Hospital and the Freeman Hospital, Joplin. He was a member of the Jasper County Medical Society, which organization he served for three terms as secretary, and a Fellow of the American Medical Association. He is survived by his widow, Mrs. Eugenia Franz Tyree, and two children.

The following resolution was adopted by Jasper County Medical Society at its meeting of November 20, 1928:

"WHEREAS, The Almighty in His wisdom has called from this fraternity our beloved confrere and friend, Dr. James Israel Tyree, and

WHEREAS, Through the years of his service as an active member and secretary we were helped and assisted in the furtherance of our study and profession, and

WHEREAS, By his going we feel the loss of his association and untiring devotion in the work of this Society, therefore be it

Resolved, That the Jasper County Medical Society express its deepest regrets and sympathy to his widow and two children and that a copy of this resolution be sent to her and be spread on our minutes for a permanent record."

LLOYD B. CLINTON, Chairman

E. D. HATCHER

ROY E. MYERS

Resolutions Committee, Jasper
County Medical Society.

JOSEPH M. DAVIS, M.D.

Dr. Joseph M. Davis, Thomasville, a graduate of Louisville Medical College, Louisville, Kentucky, 1894, died November 6, 1928, of heart disease, aged 65.

Dr. Davis was a charter member of the Oregon County Medical Society which later combined with Howell County Medical Society to form the Howell-Oregon County Medical Society. In 1922 he was alternate delegate to the State Meeting.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1928

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Benton County Medical Society, November 4, 1927.
St. Francois County Medical Society, January 3, 1928.
Webster County Medical Society, January 4, 1928.
Mercer County Medical Society, January 13, 1928.
Madison County Medical Society, January 18, 1928.
Chariton County Medical Society, February 23, 1928.
Ralls County Medical Society, March 10, 1928.
Platte County Medical Society, March 10, 1928.
Miller County Medical Society, March 16, 1928.
Camden County Medical Society, March 23, 1928.
Ste. Genevieve County Medical Society, March 26, 1928.
Atchison County Medical Society, March 30, 1928.
Caldwell County Medical Society, April 14, 1928.
Scotland County Medical Society, May 1, 1928.
Schuyler County Medical Society, May 8, 1928.
Wright-Douglas County Medical Society, May 10, 1928.
Boone County Medical Society, May 23, 1928.
Shelby County Medical Society, September 18, 1928.
Dent County Medical Society, September 19, 1928.
Bates County Medical Society, September 25, 1928.
Audrain County Medical Society, November 20, 1928.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society met at dinner in the new Tiger Hotel, Columbia, Tuesday evening, December 4, 1928. This was the annual business meeting attended by the largest number of Boone County physicians ever assembled at a single meeting. Much enthusiasm was shown and we are convinced that meetings where personal contacts are made should be more numerous.

The following officers were elected for 1929: President, Dr. William R. Shaefer, Columbia; first vice president, Dr. Stephen D. Smith, Columbia; secretary-treasurer, Dr. Hugh P. Muir, Columbia, reelected for the third term; delegate, Dr. Frank G. Nifong, Columbia; alternate, Dr. M. Pinson Neal, Columbia. Dr. Dudley A. Robnett, Columbia, was reelected to represent the Society

on the Auxiliary Committee on Public Policy of the State Association.

During 1928, under the presidency of Dr. M. Pinson Neal, Columbia, ten new members were admitted to the Society. The applications of two more physicians are before the committee of censors and they will undoubtedly be elected to membership at the January meeting, making a total of twelve new members.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met in regular session Wednesday, November 21, 1928. The meeting was called to order at 8:15 p. m. by the President, Dr. E. A. Gummig, St. Joseph.

Dr. E. M. Shores, St. Joseph, read a paper on "Heart Murmurs," which was discussed by Dr. W. Roger Moore, Dr. W. D. Webb and Dr. Fuson, of St. Joseph.

Following the reading of the paper, the proposed By-Laws came up for final action and were adopted. Some of the more important changes are as follows:

Foreign born candidates for membership must have taken out their first naturalization papers at least one year prior to becoming a member.

All candidates must have resided in Buchanan County for one year prior to becoming a member.

The annual dues are fixed at \$25 provided that for the first two years of practice the annual dues shall be one-half of the regular dues.

The per capita assessment of the State Association shall be paid to the Secretary of the Missouri State Medical Association. Two dollars of each annual dues shall be paid to the Permanent Home Trust Fund and the remainder shall go into a fund to be known as the General Fund which shall be disbursed for expenses and other purposes on order of the Society.

T. L. HOWDEN M.D., Secretary.

HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in the county court room at Clinton, November 28, 1928, at 1:30 p. m. with the following members present: Drs. J. G. Beaty, F. M. Douglass, R. D. Haire, J. R. Hampton, E. C. Peelor, S. A. Poague, G. S. Walker and S. W. Woltzen, of Clinton; Dr. W. E. Baggerly, La Duc. Drs. R. U. Stevens and H. B. Hedrick, of Kansas City, were guests of the Society.

In the absence of the president, Dr. J. W. Galbreath, Urich, Dr. F. M. Douglass, Clinton, presided. The minutes of the meetings of April 25 and May 23 were read and approved.

Dr. R. U. Stevens, Kansas City, read a paper on "Pelvic Pathology Incident to Uterine Displacement." He brought out many interesting points and his subject was discussed by all the members.

Dr. H. B. Hedrick, Kansas City, gave a lecture on "The Relation of Otology to General Medicine," which was discussed by Drs. R. D. Haire, S. A. Poague and S. W. Woltzen, of Clinton.

The chairman, on behalf of the Society, extended a vote of thanks to Drs. Stevens and Hedrick for their excellent papers.

S. W. WOLTZEN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met May 29, 1928, at 6:00 p. m. at Redings Mill south of Joplin where a banquet was served to the mem-

bers and their wives as well as to several invited guests. It was a very enjoyable social meeting and following the banquet two very interesting papers were presented.

Dr. S. H. Miller, Joplin, read an interesting paper on "Tularemia." Dr. C. Herbert Smith, Pittsburg, Kansas, presented a paper with case reports on "Disease of the Thymus Gland." He demonstrated his subject with lantern slides and discussed treatment with X-ray, the results of which were very favorable.

Meeting of October 23, 1928

The first fall meeting of the Society was held at the Joplin Y. M. C. A., October 23, 1928, at eight p. m. with the president, Dr. John L. Sims, Joplin, in the chair and the following members present: Drs. J. W. Barson, J. Albert Chenoweth, C. C. Cummings, S. A. Grantham, M. B. Harutun, H. A. Leaming, Mary L. Mack, S. H. Miller, Roy E. Myers, R. L. Neff, John L. Sims, A. R. Snyder, and W. S. Loveland, of Joplin; Dr. B. M. Henry, Alba; Dr. O. L. Alberty, Carl Junction; Dr. B. A. Dumbauld, Webb City; Drs. E. D. Hatcher, H. A. LaForce and E. J. McIntire, of Carthage. Visitor, Dr. H. L. Wilbur, Joplin.

The following members reported cases:

Dr. S. H. Miller, Joplin, reported three cases of typhoid fever in one family. The infection probably caused from a near-by spring.

Dr. John L. Sims, Joplin, reported a case of malaria.

Dr. J. Albert Chenoweth, Joplin, reported several cases of malaria.

Dr. W. S. Loveland, Joplin, reported a case of malaria associated with tuberculosis.

Dr. J. Albert Chenoweth, Joplin, talked most interestingly of his trip abroad, discussing the various clinics in Paris, Bern, Zurich, Munich, Berlin, Vienna, Budapest. He reported the different work done in these clinics and gave the names of well known operators who are working in the medical centers. Although crowded for time Dr. Chenoweth covered his trip in a most instructive manner and was complimented by all.

Meeting of October 30, 1928

The Society met in regular session at the Joplin Y. M. C. A., October 30, 1928, at eight p. m. with Vice President E. D. Hatcher, Carthage, in the chair and the following members present: Drs. O. L. Alberty and E. D. Hatcher, Carthage; Dr. B. M. Henry, Alba; Drs. A. B. Clark, L. C. Chenoweth, S. H. Miller, Roy E. Myers, C. T. Reid, R. A. Thornton and W. S. Loveland, of Joplin. Visitor, Dr. H. L. Wilbur, Joplin.

A motion was made that Drs. E. R. Hornback and C. M. Balsley, Joplin, and Dr. L. B. Clinton, Carthage, be appointed to prepare resolutions of respect for our member, Dr. James I. Tyree, Joplin, who died October 25, 1928. The president appointed the above members.

Dr. B. M. Henry, Alba, reported a case of a female patient with injuries consisting of contused wounds and bruises. Since her injury she has suffered with a very obstinate form of urticaria, of about one year's duration. She has resisted the usual forms of treatment although she responds temporarily to adrenalin.

Dr. C. T. Reid, Joplin, reported a case of infection involving the nose with screw-worms. The patient, a man, suffered intense pain in the head and was kept comfortable as possible with

opiates and aspirin. Dr. Reid reported the removal of 235 worms by actual count at the Hospital.

Dr. H. L. Wilbur, Joplin, the essayist of the evening, gave a most interesting paper on "Arthritis." He reviewed the literature of the subject with the recent advances in treatment. His paper was discussed by the following: Drs. S. H. Miller, C. T. Reid, R. E. Myers, E. D. Hatcher, L. C. Chenoweth.

Meeting of November 13, 1928

The Society met at the Joplin Y. M. C. A. November 13, 1928, at eight p. m., Vice President E. D. Hatcher, Carthage, presiding. The following members were present: Drs. L. C. Chenoweth, A. B. Clark, Harry W. Dickerson, U. G. Hoshaw, S. H. Miller, J. F. Morgan, Roy E. Myers, and W. S. Loveland, of Joplin; Dr. B. M. Henry, Alba; Drs. L. B. Clinton and E. D. Hatcher, Carthage; Drs. R. M. Stormont and W. W. Waggoner, Webb City. Visitor, Dr. H. L. Wilbur, Joplin.

The Secretary, Dr. Roy E. Myers, Joplin, not being present at the beginning of the meeting, Dr. L. C. Chenoweth, Joplin, was appointed to act as secretary.

The essayist of the evening, Dr. A. Benson Clark, Joplin, presented a paper on "Obstetrical Practice" in which he related some of the crude experiences which happened in the "Old Days." He followed this up with the management of cases in our modern times and the procedures practical and applicable to the patient in the home or hospital. He gave many interesting case histories which had come to him in his extensive and long obstetrical practice. This was an extremely valuable paper, discussing the problems most of us meet in everyday practice. His paper was discussed by Drs. L. C. Chenoweth, L. B. Clinton, S. H. Miller, R. M. Stormont, J. F. Morgan, W. S. Loveland and H. W. Dickerson.

On arrival of the secretary the minutes of the meeting of October 30, 1928, were read and approved. No meeting was held on November 6, 1928, on account of the general election.

A letter was read from Dr. Ralph E. Duncan, Kansas City, relative to a joint program with Dr. Kerwin W. Kinard, President of the Jackson County Medical Society, on December 11, 1928. They were cordially and unanimously invited to present their program as suggested in the letter.

The committee on resolutions of respect for Dr. James I. Tyree did not report, due to the absence of two of the members of the committee. It was moved, seconded and carried that we discharge the original committee and appoint a new committee of three members with Dr. Lloyd B. Clinton, Carthage, as chairman.

ROY E. MYERS, M.D., Secretary.

MARION COUNTY MEDICAL SOCIETY

The Marion County Medical Society held its regular monthly meeting at St. Elizabeth's Hospital, Hannibal, December 8, 1928, at eight p. m. This was the business meeting of the year.

A report of the secretary and treasurer was read and accepted as rendered.

Due to the fact that the activities of the Society are steadily broadening it was found necessary to bring about a material increase in the local dues.

The nursing situation in general and partic-

ularly in Hannibal was thoroughly discussed, but any action the Society may wish to take was deferred to a later meeting.

After disposing of many important questions under the regular order of business the following officers were elected for 1929: President, Dr. W. F. Francka, Hannibal; vice president, Dr. C. W. Hamlin, Palmyra; secretary-treasurer, Dr. H. B. Goodrich, Hannibal; alternate delegate, Dr. C. W. Hamlin, Hannibal; censor, Dr. H. O. Daniel, Hannibal.

W. F. FRANCKA, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

After the regular monthly staff meeting of the Sisters of St. Francis Hospital, Maryville, adjourned, the Nodaway County Medical Society met in regular session in the hospital's first floor lecture room at 7:45 p. m. Friday, November 9, 1928, with the president, Dr. H. S. Maxwell, Hopkins, in the chair.

The attendance was numerically small because of very inclement weather and bad roads, but the following members responded to roll call: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, R. C. Person, F. M. Ryan, F. C. Wallis and W. M. Wallis, Jr., of Maryville; Dr. C. J. Garding, Conception Junction; Dr. C. D. Humbert, Barnard; Drs. C. W. Kirk and H. S. Maxwell, Hopkins. Drs. C. Wilbur Mercer and H. M. Gilkey, of Kansas City, by courtesy of the Kansas City Southwest Clinical Society, and Sisters Agatha, Gabriel, Gertrude and Helena, of the hospital staff, were present as invited guests of the Society.

The minutes of the regular meeting of October 12, 1928, were read. Dr. Leslie E. Dean, Maryville, called attention to a set of resolutions which he had read from the floor at that meeting, and moved that the secretary be ordered to include notice of those resolutions in the minutes. Dr. Wm. M. Wallis, Jr., Maryville, seconded the motion which was carried. The following paragraph is therefore to be inserted in last month's minutes:

Dr. Leslie E. Dean, Maryville, read resolutions on prescriptions for students by the Department of Physical Education of the Northwest Missouri State Teachers College, and moved their adoption. There was no second.

The minutes of the regular meeting of October 12, 1928, were then ordered approved by the president.

Dr. Wm. M. Wallis, Jr., Maryville, moved that the last paragraph in the resolutions which were adopted by the Society last month be altered from:

Resolved, That copies of this resolution be recorded in the minutes of the Nodaway County Medical Society, and that copies be sent to the President and the Board of Trustees of the Northwest Missouri State Teachers College, and to the Governor and the Attorney-General of the State of Missouri, and to the officials of the State Board of Health of Missouri, and to the Missouri State Medical Association for publication in the Association's Journal, and to the public press,

to read as follows:

Resolved, That this resolution be recorded in the minutes of the Nodaway County Medical Society and that copies be sent to the President and to the Board of Trustees of the Northwest Missouri State Teachers College, and to the Missouri State Medical Association for publication in the Association's Journal as a part of the Nodaway County Medical Society's proceedings.

Dr. L. E. Dean, Maryville, seconded the motion which was discussed by Drs. Cummins, Bell and Humbert, Maryville. The motion carried. The

resolutions as ultimately and finally adopted follow:

WHEREAS, It has come to the attention of the Nodaway County Medical Society that the Northwest Missouri State Teachers College, at Maryville, Missouri, has on its faculty and in its employ a man who has posed and masqueraded as a physician and made physical examinations of students and made diagnoses of disease among these students as the result of these examinations, and administered vaccines and other therapeutic treatments to these students, and that the college has been conveying to its students the idea that this man is a physician rather than that he is only a teacher on its staff, and

WHEREAS, The Northwest Missouri State Teachers College has published and distributed to other schools and to prospective students and to the public a catalogue which states that this man has an M.D. degree, when in fact he does not possess this degree and has not earned or possessed it, and

WHEREAS, This man is not now, and has not been a graduate of a reputable medical school, and

WHEREAS, He has not been licensed to practice medicine by the State Board of Health of the State of Missouri, and hence is not qualified to administer and prescribe therapeutic agents in the manner in which he has been doing, and

WHEREAS, The action of the Northwest Missouri State Teachers College in crediting this layman with a medical degree, when he is not entitled to it, has the effect of lowering the public's regard for the medical profession, therefore be it

Resolved, That the Nodaway County Medical Society hereby goes on record as expressing its censure of and condemnation of the action on the part of the Northwest Missouri State Teachers College in hiring and using this man as a physician when a proper investigation would have shown that he was not qualified to carry on the work of a physician, and be it further

Resolved, That this resolution be recorded in the minutes of the Nodaway County Medical Society and that copies be sent to the President and the Board of Trustees of the Northwest Missouri State Teachers College and to the Missouri State Medical Association for publication in the Association's Journal, as a part of the Nodaway County Medical Society's proceedings.

Dr. Wm. M. Wallis, Jr., moved that the president and secretary of the Society draw up a set of resolutions, to be sent to all parties concerned in the above resolutions, expressing the Society's opinion that, while the conditions exist as stated in the above resolutions, the last paragraph of these resolutions as originally adopted had been adopted too hastily, and that out of personal friendship for Dr. Miller, President of the Board of Regents of the Northwest Missouri State Teachers College, and out of a fear that the exposures in these resolutions would be detrimental to the college's standing and injurious to the city of Maryville, these resolutions should not be sent or given to the authorities or the public, and should have no publicity other than a record in the Society's archives. Dr. Dean seconded the motion, which was carried.

Dr. C. T. Bell, Maryville, moved that the secretary be ordered to write to the Attorney-General and tell him to officially disregard the copy of the resolutions sent him for the same reasons as given in Dr. Wm. M. Wallis' preceding motion. Dr. Dean seconded the motion, which was discussed by Drs. Ryan, Cummins and Humbert, Maryville. The motion was carried four to three, the president and Dr. C. J. Garding not voting.

Dr. L. E. Dean, Maryville, moved that the secretary be ordered to submit his letter to the president for approval before mailing it to the Attorney-General. Dr. Wm. M. Wallis, Jr., seconded the motion, which carried.

Dr. C. T. Bell, Maryville, as acting chairman of the Committee of Censors, gave a favorable report on the application of Dr. J. A. Phipps, Elmo, for admission into and membership in the Nodaway County Medical Society and the Missouri State Medical Association. The president ordered the secretary to prepare the ballots on Dr.

Phipps' application. Dr. R. C. Person, Maryville, was appointed teller. The ballots were spread and showed a vote of 9 for and none against Dr. Phipps' election. The president declared Dr. Phipps elected to membership.

The following subjects were suggested for the consideration of the Society at the regular meeting of December 14, 1928: Differential Diagnosis in Acute Abdominal Diseases; Differential Diagnosis in Diseases of the Chest; Arthritis; Splenic Anemias.

The meeting was then turned over to our Kansas City guests for a scientific program.

Dr. Mercer read an excellent paper on "Talipes," illustrating his talk with blackboard notes, the skeleton, instruments, etc. He reviewed the anatomy of the midtarsal joint, classified its deformities and tabulated the different methods of treatment. He interspersed his paper with many practical pointers for the general practitioner.

Dr. Gilkey read a paper on "Skin Diseases in Children." He illustrated his material with photographs and lantern slides. He gave especial attention to so-called eczema, and brought out many interesting and worth while ideas picked up in European dermatological clinics.

Both of these papers were freely discussed by the members and the speakers were very gracious in answering the numerous questions put to them.

Dr. C. J. Garding, Conception Junction, moved that the Society adjourn until December 14. Dr. R. C. Person, Maryville, seconded the motion which was carried at 10:45 p. m.

CHAS. D. HUMBERD, M.D., Secretary.

SALINE COUNTY MEDICAL SOCIETY

A joint meeting of the Saline County Medical Society and the Women's Auxiliary was held at the Goodwin Hotel, Marshall, Wednesday, November 21, 1928, at seven p. m. A most excellent dinner was served to seven members of the Medical Society and five Auxiliary members.

After the dinner the ladies adjourned for their regular meeting, and the physicians having no program outlined proceeded to have a round table discussion on various subjects of interest to the profession. Dr. F. A. Howard, Slater, president, presided.

A motion was made that the secretary, Dr. H. R. Conway, Marshall, be instructed to send a message of condolence to Mrs. J. S. Harrison, Sweet Springs, Dr. Harrison having passed away on November 18, 1928, following an operation. Motion seconded and carried.

Realizing the failure of the experiment of having the Society meetings in the evenings in order to increase the attendance, Dr. H. R. Conway, Marshall, moved that the motion of the previous month changing the time of meeting be reconsidered. The motion was seconded and carried and the meeting time changed to the noonday luncheon as heretofore.

Meeting of November 21, 1928

The Saline County Medical Society and the Women's Auxiliary met at luncheon at Hotel Goodwin, Marshall, December 12, 1928. The meeting was called to order at 1:45 p. m. by the president, Dr. F. A. Howard, Slater.

The election of officers for 1929 was held, result-

ing in the following being elected: President, Dr. F. A. Stahl, Malta Bend; first vice president, Dr. C. W. Caldwell, Slater; second vice president, Dr. W. M. Bickford, Marshall; secretary-treasurer, Dr. A. E. Gore, Marshall. Dr. W. M. Bickford was elected to the Hospital Advisory Board to replace Dr. E. E. Brunner, Marshall. Other members of the board are: Dr. F. A. Howard, Slater; Dr. Luther S. James, Blackburn; Dr. D. F. Manning, Marshall; Dr. W. M. Bickford, Marshall; Dr. A. C. Putnam, Marshall.

A motion was made, seconded and carried, that the election of the board of censors be deferred until the next meeting.

The incoming president, Dr. F. A. Stahl, Malta Bend, requested that he be permitted to name his committees at the next regular meeting.

There were nine members of the Society and four Auxiliary women present with Dr. W. A. Shelton, Kansas City, as our guest.

H. R. CONWAY, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in regular session Thursday, December 6, 1928, at 2:00 p. m. in the office of Dr. J. A. Fuson, Mansfield. The following members were present: Dr. J. D. Ferguson, Ava; Dr. J. A. Fuson, Mansfield; Drs. E. C. Wittwer, R. A. Ryan and A. C. Ames, of Mountain Grove; Dr. L. T. Van Noy, Norwood. Visitors: Drs. C. W. Russell, Guy D. Callaway and E. L. Cartwright, of Springfield; Dr. J. B. Cunningham, Ava.

On account of the president, Dr. L. T. Van Noy, Norwood, not being present at the opening of the meeting, Dr. J. D. Ferguson, Ava, vice president, presided. The minutes of the previous meeting were read and approved.

Dr. C. W. Russell, Springfield, read a paper on "Goiter," which provoked considerable discussion.

Dr. E. L. Cartwright, Springfield, gave a talk on "Emergencies in Pregnancy" in which vomiting was the objective point. The intravenous injection of glucose was recommended, whereupon Dr. E. C. Wittwer, Mountain Grove, raised the question, "Why not first use the remedy by rectal injection and only intravenously as a last resort?" He claimed that in the great majority of cases the simple treatment is equally effective.

Dr. A. C. Ames, Mountain Grove, reported on the trial of stannoxyl in a few cases of staphylococcic infection with results which seem to make it worthy of further trial.

Dr. E. C. Wittwer, Mountain Grove, discussed a more extensive use of stannoxyl with results that seem to indicate its apparent worthlessness.

This being the time of our annual election of officers, it was voted to reelect the officers for 1929, as follows: President, Dr. L. T. Van Noy, Norwood; vice president, Dr. J. D. Ferguson, Ava; secretary-treasurer, Dr. A. C. Ames, Mountain Grove; delegate, Dr. R. M. Norman, Ava; alternate, Dr. E. C. Wittwer, Mountain Grove; censor for three years, Dr. F. B. Dailey, Mountain Grove (term expires, 1931). The censors holding over are: Dr. L. T. Van Noy, Norwood (term expires, 1929); Dr. J. A. Fuson, Mansfield (term expires, 1930).

A. C. AMES, M.D., Secretary.

ST. LOUIS MEDICAL SOCIETY



CLEVELAND H. SHUTT, M.D.

PRESIDENT, 1929

For its first time in recent years the St. Louis Medical Society elected all its executive officers for 1929 by unanimous vote on November 15, 1928. For president the Society chose Dr. Cleveland H. Shutt, a member who has been identified with the activities of the organization ever since his graduation in 1904 and who was for sixteen years associated with the management of the municipal hospitals of St. Louis.

Dr. Shutt is a native of the "Hoosier State," born in Dekalb County, Indiana, in 1881. His early inclination was toward the pharmaceutical profession but after graduating in pharmacy he continued his studies toward a medical degree. At once, after graduating he essayed the competitive examination for interns at the St. Louis City Hospital, winning an appointment and ranking eighth in a class of over one hundred applicants. He spent six years in resident service at the City Hospital being assistant superintendent and surgical house officer during the last three years of his service. Resigning in 1909 he spent a year in Europe working in the clinics and hospitals of Vienna, Berlin and London. In 1910 he returned to St. Louis and established himself in private surgical practice. In 1911 Mayor Kreismann prevailed upon Dr. Shutt to accept the position of hospital commissioner of St. Louis, a post that placed him in charge of all the city hospitals and infirmaries comprising more than 4500 beds. After ten years of distinctive service to the city and to the medical profession of St. Louis he resigned from the position in 1921 and again entered private practice, specializing in general surgery. He is a member of the surgical staff of the Deaconess Hospital and has established more than a local reputation as a fair, progressive and unusually successful administrator of large affairs. He has declined repeated

offers to again engage in the management of large hospitals. He has made several valuable and original contributions to surgical literature. The fact that this Society of over one thousand members has selected Dr. Shutt to act as president without an opposing vote is a tribute to his worthiness and efficiency and indicates that the Society will call upon the best trained and most able men obtainable to guide its affairs.

Other officers elected for 1929 are: First vice president, Dr. Edwin J. Schisler; second vice president, Dr. Emma Phelan; secretary, Dr. H. S. Langsdorf; councilors for three years, Drs. C. H. Neilson, Roland S. Kieffer, W. C. G. Kirchner, Lee Dorsett.

Meeting of the General Society, October 16, 1928

The meeting was called to order at 8:40 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meeting of October 9, 1928, were read and approved.

The scientific program consisted of two thoughtful and able summaries of the nose, throat and eye specialties to general practice by distinguished out of town guests, viz., "The Treatment of Common Ailments of the Ear, Nose and Throat in General Practice," by Dr. Perry G. Goldsmith, Toronto, Canada; and "Relation of the Eye to General Diseases," by Dr. Allen Greenwood, Boston, Mass.

The following resolution was read by the secretary pro tem and on motion of Dr. Edwin J. Schisler, seconded by Dr. Henrietta A. S. Borck, and after free discussion, was adopted by a large majority.

"WHEREAS, For the first time in the history of the City of St. Louis, a layman has been nominated for the office of Coroner, and

"WHEREAS, Prior thereto and since the inception of this most important office, a member of the medical profession has always been in charge, and

"WHEREAS, It is known that the holder of this office, in the performance of his duties, must determine from a medical point of view, the causes of death in cases coming within his jurisdiction and take such action as the circumstances demand, and

"WHEREAS, The holder of this office is required, under the law, and in the performance of his duties to hold autopsies, and

"WHEREAS, A physician's skill is necessary to properly conduct an autopsy, and

"WHEREAS, A layman, without knowledge of medicine, can succeed only by turning the administration of his office over to one or more technical assistants thereby submitting himself to their direction, and

"WHEREAS, To do so a layman, under such circumstances, would become a useless appendage to said office, and

"WHEREAS, The National Research Council and the American Medical Association, now conducting its investigation into the office of Coroner, states, 'For the present the Medical Profession can do much to promote the efficiency of the Coroner's office if physicians will use their influence to see that the best qualified available candidate is elected,' therefore, be it

"Resolved, That it is the consensus of opinion of this body, the St. Louis Medical Society, that as between a physician and layman for the office of Coroner, the physician is better qualified."

Attendance 150.

MARSH PITZMAN, M.D., Secretary pro tem.

Meeting of October 23, 1928

The meeting was called to order at 8:35 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meeting of October 16, 1928, were read and approved.

The program was given by the departments of obstetrics of Washington University and St. Louis Maternity Hospital and consisted of the following: "Newer Observations Concerning the Anterior Pituitary Hormone in Pregnancy," Dr. Hugo Ehrenfest.

Lantern slides by Dr. Grover Liese.

"The Third Degree Laceration; Special Points in Operative Technique and Postoperative Treatment," Dr. G. D. Royston.

"Value of X-Ray as a Diagnostic Aid in Pregnancy," Dr. F. J. Taussig.

"Further Observations on the Gastric Juice, Nausea, and Vomiting in Pregnancy," Dr. Franz Arzt.

"Intracranial Hemorrhage of New Born—A Pathological Study," Dr. Richard Paddock.

"Important Procedures in the Conservative Treatment of Eclampsia," Dr. William J. Dieckmann.

Discussion by Drs. George Gellhorn, Otto H. Schwarz, Edgar F. Schmitz; Drs. Ehrenfest, Royston, Taussig, Arzt and Paddock closing.

Announcement of the Hodgen-Mudd Memorial at Pittsfield on October 30, 1928, was made. The following committee was appointed to represent the St. Louis Medical Society at this ceremony: Drs. Henry Schwarz, Frank R. Fry, Willis Hall, Amand Ravold, James A. Dickson, Robert E. Schlueter, Joseph Grindon and Max C. Starkloff.

Attendance 150.

ROLAND S. KIEFFER, M.D., Secretary.

Meeting of October 30, 1928

The meeting was called to order at 8:45 p. m. by Dr. Edwin J. Schisler, in the absence of the president and vice presidents. The minutes of the meeting of October 23, 1928, were read and approved.

The program follows:

"Arthritis and Orthopedic Surgery," Dr. Archer O'Reilly.

Discussion by Drs. Samuel E. Peden, J. Albert Key, Joseph E. Wheeler, Edwin J. Schisler; Dr. O'Reilly closing.

"Fractures of the Os Calcis," with lantern slide demonstration, Dr. Edgar Stewart.

Discussion by Drs. J. Albert Key, Norvelle Wallace Sharp; Dr. Stewart closing.

"Gunshot and Stab Wounds of the Chest—Roentgenologically Considered," with lantern slide demonstration, Dr. L. R. Sante.

Discussion by Drs. W. C. G. Kirchner, Norvelle Wallace Sharpe, Colonel W. A. Wickline.

Attendance 57.

A. H. DIEHR, M.D., Secretary pro tem.

Meeting of the Council, October 10, 1928

The meeting was called to order at 8:15 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meeting of June 4, 1928, were read and approved.

Dr. E. K. Dixon reported for the membership committee.

On motion of Dr. C. A. Vosburgh, seconded by Dr. F. J. V. Krebs, the candidates were voted upon collectively, resulting in the election of the following: Active, William G. Becke, 912 Beaumont

Bldg.; Walter B. Hoover, 1011 Beaumont Bldg.; W. Kriss McIntyre, 945 Missouri Bldg.; Mort D. Pelz, 1004 Missouri Bldg.; Allen B. Potter, 3725 S. Kingshighway Blvd. Junior, Ralph Berg, City Hospital; Wilson L. DuComb, St. John's Hospital; Edward D. Greer, Mo. Pacific R. R. Hosp.; Carl H. Lindeman, 4126 Shreve Ave.; Peter J. Manion, 4902a Mardell Ave.; Louis A. Reuter, 4227 Russell Bldv.; Melvin A. Roblee, Beaumont Bldg.; Edmond F. Sassin, 1701 Park Ave.

The applications of Dr. Bertrand Y. Glassberg from the Chicago Cook County (Illinois) Medical Society and Dr. Richard K. Kimmel from the Macon (Decatur, Ill.) County Medical Society were read.

Dr. E. F. Schmitz reported verbally for the program committee.

Dr. H. Unterberg moved that the report be accepted. Seconded by Dr. John Green. Carried.

Dr. I. H. Boemer read the report of the library committee.

Dr. Claude D. Pickrell reported verbally for the ethics committee and on motion the report was accepted.

The report of the necrology committee was read by the secretary and on motion accepted.

Dr. Fred Bailey reported verbally for the disaster relief committee, which was received.

Dr. Norvelle Wallace Sharpe discussed the question of a new book plate for the library and requested authorization from the Council for heraldic investigation. No definite action was taken.

Dr. Carroll Smith read the report of the treasurer. On motion of Dr. Fred Bailey, seconded by Dr. R. B. H. Gradwohl, the report was accepted.

Dr. E. C. Funsch reported verbally for the house committee.

Dr. H. Unterberg moved that the chairman of the house committee be instructed to make a complete inventory of all property belonging to the Society and that a copy be placed in the safe deposit box. Seconded by Dr. Fred Bailey. Carried.

On motion of Dr. H. Unterberg, seconded by Dr. C. A. Vosburgh, Drs. Clarence M. Nicholson and Willis Hall were elected to Honor Membership.

Dr. R. E. Schlueter read the report of the committee on revision of Constitution and By-Laws. On motion the report was accepted.

On motion of Dr. H. Unterberg, seconded by Dr. C. A. Vosburgh, the president was authorized to employ an operator for the lantern on Tuesday evenings.

Dr. R. E. Schlueter moved that the committee be authorized to obtain plans and specifications for furniture for the Ball collection. Seconded and carried.

Dr. R. B. H. Gradwohl reported verbally for the art exhibit committee. On motion the report was received.

Councilors present: Drs. Fred Bailey, E. C. Funsch, R. B. H. Gradwohl, John Green, F. J. V. Krebs, C. H. Neilson, Francis Reder, R. E. Schlueter, H. Unterberg, C. A. Vosburgh, Roland S. Kieffer.

Councilors absent: Drs. John F. Hardesty, J. F. Mayes, Amand Ravold.

Visitors present: Drs. E. K. Dixon, E. F. Schmitz, I. H. Boemer, C. D. Pickrell, Norvelle W. Sharpe, Carroll Smith.

Meeting of November 13, 1928

The meeting was called to order at 8:30 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meetings of October 30 and November 2 were read and approved.

The program was given by the department of pathology of Washington University School of Medicine and consisted of the following:

"The Effect of Administration of Potassium Iodide, Anterior Pituitary and Thyroid Substance on the Compensatory Hypertrophy of the Thyroid Gland and on the Normal Thyroid," Drs. S. H. Gray and H. A. McCordock.

Discussion by Drs. S. E. Peden and Alphonse McMahon.

"The Relationship Between Donor and Host as a Factor in Tissue Grafting," Dr. Walter Siebert.

Discussion by Dr. J. Ellis Jennings.

"Heredity and Internal Secretion in the Origin of Mammary Cancer," Dr. Leo Leob.

Attendance 100.

ROLAND S. KIEFFER, M.D., Secretary.

WOMEN'S AUXILIARY**OFFICERS 1928-1929**

President, Mrs. Willard Bartlett, St. Louis.

President-Elect, Mrs. M. P. Ravenel, Columbia.

1st Vice President, Mrs. Harry F. Parker, Warrensburg.

2nd Vice President, Mrs. T. O. Klingner, Springfield.

3rd Vice President, Mrs. M. A. Hanna, Kansas City.

4th Vice President, Mrs. James F. Owens, St. Joseph.

Corresponding Secretary, Mrs. Theodore Prewitt Brookes, St. Louis.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. W. H. Goodson, Liberty.

Auditor, Mrs. Vilray P. Blair, St. Louis.

Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Henchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

ORGANIZED COUNTIES AND PRESIDENTS OF WOMEN'S AUXILIARIES

COUNTY	PRESIDENT	ADDRESS
Atchison.....	Mrs. E. P. Taylor.....	Fairfax
Audrain.....	Mrs. H. C. Brashear.....	Mexico
Bates.....	Mrs. E. N. Chastain.....	Butler
Boone.....	Mrs. M. P. Ravenel.....	Columbia
Buchanan.....	Mrs. F. H. Spencer.....	St. Joseph
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Caldwell.....	Mrs. Emma A. B. Thompson.....	Breckenridge
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Cass.....	Mrs. J. S. Triplett.....	Harrisonville
Clay.....	Mrs. J. J. Gaines.....	Excelsior Springs
Clinton.....	Mrs. C. H. Risley.....	Cameron
Cole.....	Mrs. S. P. Howard.....	Jefferson City
Davies.....	Mrs. L. R. Doolin.....	Gallatin
Dent.....	Mrs. A. T. McMurtry.....	Salem
Gentry.....	Mrs. J. N. Barger.....	Albany
Greene.....	Mrs. Paul F. Cole.....	Springfield
Grundy.....	Mrs. J. E. Neely.....	Trenton
Henry.....	Mrs. R. D. Haire.....	Clinton
Holt.....	Mrs. F. E. Hogan.....	Mound City
Iron.....	Mrs. R. W. Gay.....	Ironton
Jackson.....	Mrs. A. L. Skoog.....	Kansas City
Jasper.....	Mrs. C. C. Cummings.....	Joplin
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COUNTY	PRESIDENT	ADDRESS
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Platte.....	Mrs. H. M. Clark.....	Platte City
Randolph.....	Mrs. T. S. Fleming.....	Moberly
St. Francois.....	Mrs. G. L. Watkins.....	Farmington
St. Louis City.....	Mrs. Raymond M. Spivy.....	St. Louis
St. Louis.....	Mrs. W. F. O'Malley.....	Webster Groves
Saline.....	Mrs. F. A. Howard.....	Slater
Scotland.....	Mrs. P. M. Baker.....	Memphis
Vernon-Cedar.....	Mrs. T. B. Todd.....	Nevada

ST. LOUIS AUXILIARY

The Women's Auxiliary to the St. Louis Medical Society gave a tea on November 22, 1928, in honor of the eighty new members of the Auxiliary. The guests assembled in the auditorium for a brief program followed by tea in the banquet hall.

Mr. Lawrence Mueller sang very beautifully accompanied by Mr. Darst.

Mrs. George Seidlitz reported that the Auxiliary had taken a supply of magazines to one of the colored hospitals. She asked that children's books be brought to the Medical Society building for distribution at Christmas among the crippled children at the Missouri Baptist Hospital.

Mrs. Raymond Spivy, the president, introduced the speaker of the day, Dr. Harriet Stevens Cory, who gave a most interesting account of the great amount of educational work in social hygiene accomplished during the last twenty years by unobtrusive but persistent methods.

MRS. H. MCCLURE YOUNG.

A REMINDER OF THE NATIONAL HYGEIA CONTEST

Half of the period for the National Hygeia contest is now past, the final date being March 31, 1929. The rules for the contest follow:

A prize of \$500 in cash will be given to the state auxiliary that sends in the largest number of paid Hygeia subscriptions above 1,000.

Hygeia will give \$25 to any county auxiliary sending in 100 subscriptions, exclusive of group orders for 50 or more subscriptions, before the close of the contest.

A new or renewal subscription will count as one order, a two-year subscription will count as two orders, a six-month subscription will count as one-half of an order.

The contest is open to all auxiliaries affiliated with a state medical society, to members at large of a state auxiliary or the national auxiliary.

Checks should be made payable to Hygeia or to the American Medical Association, and if possible, commissions should be deducted before the orders are sent to the Hygeia subscription department.

A duplicate of the receipt sent each county auxiliary will be mailed to Mrs. A. B. McGlothlan, St. Joseph, National Hygeia Chairman.

It is essential that the secretary of each auxiliary keep her receipts until the close of the contest for the purpose of checking with the Hygeia subscription department and with Mrs. McGlothlan.

In the event of a tie the state sending in the largest number of two-year orders will be awarded the prize.

The time of the contest covers the period from September 1, 1928, to March 31, 1929. Postmarked envelopes containing subscription orders will govern the closing date.

Books for Leisure Moments

"Lenin" is a distinct contribution to the chronicles of an amazing overturning whose reverberations have been felt throughout the world. In this volume by Marcu (Macmillan Company, New York) we find perhaps the nearest approach to a coherent and lifelike portrait of this unusual man that has as yet been offered the uninformed public. It is the study of a man and of a movement, both personal and political, and it gives the reader some idea of the stormy personality whose name it bears. It gives a consistent and credible analysis of the Russian Revolution and its chief figure. As a history of the Revolution and of the establishment of the Bolshevik regime, this volume is a contribution of genuine worth and importance to history.

It has been said that Lenin was the most outstanding figure of the present generation and even stronger than any personage who figured in the French Revolution. In this book we have the story of his life from boyhood down to the time of his death, January 21, 1914. It is the story of an outlaw who became the dictator of millions of people and who never in his entire career showed a spark of selfish ambition, according to this author.

Lenin's first reactions to conditions in Russia under the czaristic regime came about as a result of viewing the great misery of the factory workers in what was then St. Petersburg. In an attempt to relieve these conditions his first daring move was to write and distribute revolutionary tracts which brought upon him three years of exile in Siberia. During this period he read and studied socialism. Soon after his return from Siberia he was again exiled and again there followed years of loneliness and darkness. Through these long heartbreaking years his scheme of government was gradually taking shape in his mind and as always he was governed by his communistic ideals. His theory was that every one should work and every one should eat; that there should be no idlers and no people in want.

Then came the revolution of 1905—a failure. This was indeed a nightmare resulting in the death of over two hundred people. In the Cabinet no one was able to determine who were the instigators of revolt and who stood for the maintenance of order. Every one was regarded as a possible enemy. The result of this revolution was defeat, and Lenin was again banished for a period of twelve years.

As has been true of other great world leaders, Lenin often made the mistake of looking beyond the bounds of the attainable and hoping for miracles. For him, power was the es-

sential need. In order to be able to command he was determined to acquire power. This idea was the very corner-stone of his dreams. His influence like that of every other leader was often resisted by his followers. His ambition, it has been said, could easily withstand the temptation to be leader for a week, for he always felt that the organizations which he led were of more importance than himself.

The conclusion Lenin reached during his years of exile was that armed revolt was essential if Tsarism was to be beaten. He saw power, not as a thing to be seized and used for selfish purposes but as something to be secured, even brutally snatched if need be, for the benefit of the masses who were not wise enough to see that they must have it and could get it. In spite of opposition even within revolutionary ranks he fought always for armed revolt, as he looked upon this as the only way to wrest power from the arrogant autocracy in the saddle.

It is said of Lenin that he became dictator of millions and never showed a spark of personal ambition. He was president of the Soviet republic at fifty-six, and was gradually shaping into form the chaos into which government in Russia had fallen, when death overtook him. He died not as an old man, but as a worn-out man. The story of the life of Lenin as found in this volume will interest every one who wants to understand the man and the times and Russia.

TUBERCULOUS ENTEROCOLITIS

Frank Smithies, Morris Weissman and Frank Fremmel, Chicago (*Journal A. M. A.*, Dec. 22, 1928) conducted a gastro-enterologic survey for definite evidence of the incidence of digestive dysfunction among the patients in a tuberculosis sanatorium. The summary of symptomatic anomalies was: dysphagia (laryngeal or tracheal disease), 15 per cent.; gastric symptoms (nausea, vomiting, pyrosis), 40 per cent.; peptic ulcer syndrome, 3.5 per cent.; disturbances in bowel, 79 per cent.; normal stool frequency, but dyspepsia present, 19 per cent. In this group there were forty-four males and thirty-six females. The average age approximated 32 years; the youngest patient was 6, and the oldest 70 years. The average duration of the tuberculosis (usually, initially, pulmonary) was 2.6 years, the shortest duration being two months and the longest fourteen years. At the time of study, the sputum in forty-nine cases contained tubercle bacilli; in seventeen complement fixation tests were positive; in twelve the sputum was bacilli free, but in ten of these tubercle bacilli had been present in the sputum of positive complement fixation tests had been obtained. The two exceptions were instances of characteristic tuberculous bone lesions. In the entire group there was a family history of tuberculosis in twenty-three (28.7 per cent.). The authors discuss the alimentary tract physiologic function affected by tuberculosis; location of enteric lesions; modes and routes of infection; allergic manifestations in tuberculous enterocolitis; clinical groupings and clinical summaries; roentgen studies and the mode of the management.

BOOK REVIEWS

CONSTITUTIONAL INADEQUACIES. An Introduction to the Study of Abnormal Constitutions. By Nicola Pende, M.D., Professor of Clinical Medicine, Royal University of Genoa, Italy. Translated by Sante Naccarati, M.D., Sc.D., Ph.D., Associate Professor of Nervous and Mental Diseases, Post-Graduate Medical School of New York, New York City, etc. Illustrated. Philadelphia: Lea and Febiger. 1928. Price \$3.50.

This small book, which is presented in a most fascinating and clear-cut manner, is much more than an introduction to the study of abnormal constitutions. It is a treatise in condensed form containing everything worth while pertaining to the subject. The author emphasizes the personality of the patient or human biotypology rather than the pathological laboratory or strictly scientific condition. The book consists of two parts, an excellent glossary and an author's and general index.

The first part considers the general concepts of constitutional anomaly and disease and criteria for the classification of the individual biotypes. Part Two deals with the relationship of localized constitutional anomalies and inadequacies of the circulatory, digestive, respiratory, urogenital, endocrine and nervous systems. One chapter is devoted to the principles of therapy of constitutional inadequacies.

This English translation is invaluable to the medical man, to the psychologist and to the specialist. It is also an aid to the social worker who deals with those of criminal tendencies better to understand the true nature of man. This book fills a much wanted need and opens in America a broad new field in the diagnosis and treatment of ailments of the human body.

A. C. C.

GYNECOLOGY. By William P. Graves, A.B., M.D., F.A.C.S., Professor of Gynecology at Harvard Medical School, etc. Fourth Edition. Thoroughly revised. Octavo volume of 1016 pages. With 562 illustrations, 128 in colors. Philadelphia and London: W. B. Saunders Company. 1928. Cloth, \$10.50 net.

This edition excels the others. It is clear, concise, complete and conservative. The tabulated bibliographies strengthen it. The chapter on sterility should be read by all obstetricians and gynecologists. A chapter on endometriosis brings out the new development and is well worth reading. Menstruation and ovulation are rewritten and endocrinology and organotherapy are given prominence yet held in check in his usual ultra conservative manner. New growths including cancer has been rewritten using the newer classification. Diathermy seems to be coming into its own.

Some new books are merely orderly arrangement of old material. Here we have new material with the author's own experience clearly designated throughout the volume.

G. F. P.

PHYSICAL EDUCATION ACTIVITIES FOR HIGH SCHOOL GIRLS. By the Staff of the Department of Physical Education for Women, University of Michigan, Ann Arbor, Michigan. Illustrated with 54 engravings. Philadelphia: Lea & Febiger. 1928. Price \$3.50.

This book will be of slight interest to medical men because it does not make clear the relationship between the physical activities of high school girls and the practice of medicine.

It is, in effect, a resume or summary of the vari-

ous games and activities which might be safely employed in gymnastic work with high school girls. This will be of considerable help to physical directors and teachers of gymnastics, but will not interest greatly the practicing physician.

The only point at which this book touches the practice of medicine is in reproducing the blanks used for examination of the candidate for physical activities. This, of course, is very complete and good.

Your reviewer feels that the book illustrates the need of having trained physicians in charge of the physical training not only of boys but of girls as well. In fact he believes that high school principals should have at least some medical training. Otherwise they do not understand the physical limitations of their pupils and the precautions which should be observed in adolescence. Furthermore, the development of preventive medicine has reached a stage where it is being applied to high schools and colleges.

G. H. H.

OPHTHALMOSCOPY, RETINOSCOPY AND REFRACTION. By W. A. Fisher, M.D., F.A.C.S., Chicago, Ill., Professor of Ophthalmology, Chicago Eye, Ear, Nose and Throat College, etc. Second revised and enlarged edition. With 260 illustrations, including 48 colored plates. Philadelphia. F. A. Davis Company, publishers. 1927. Price \$3.75.

This is a compend and gives a review of the subjects covered in a concise form. It also includes a brief review of the newer methods of examination and diagnosis, such as the use of the Gullstrand slit count for the microscopical examination of the living eye under comparative low magnification, and the use of the Gullstrand binocular ophthalmoscope.

This is a good book for the beginning in the study of the subjects covered.

J. S. L.

BLOOD AND URINE CHEMISTRY. By R. B. H. Gradwohl, M.D., Director of the Gradwohl Laboratories, St. Louis, Mo., and Ida E. Gradwohl, A.B., Instructor in the Gradwohl School of Laboratory Technic, St. Louis, Mo. With 117 illustrations and 4 color plates. St. Louis: The C. V. Mosby Company. 1928. Price \$10.00.

The authors present chemical methods for use in the clinical laboratory and the interpretation of the results in one of the most extensive books that has appeared in this field. The method of presentation, somewhat novel, is apparently for the laboratory worker whose chemical knowledge is limited. The section on methods is complete and the procedures are described in minutest detail.

The second section, dealing with the interpretation of the laboratory results, covers more than half the book. It is obviously written for the practitioner who has not the time to read nor access to periodical medical literature. Many original articles are quoted verbatim and in some cases the entire article is reprinted. This section should appeal to the general practitioner and enable him to make a more intelligent use of laboratory findings.

C. J. W.

A TEXTBOOK OF FRACTURES AND DISLOCATIONS. Covering their Pathology, Diagnosis and Treatment. By Kellogg Speed, S.B., M.D., F.A.C.S., Associate Professor of Clinical Surgery, Rush Medical College of the University of Chicago, etc. Second edition, enlarged and thoroughly revised. Illustrated with 987 engravings. Philadelphia: Lea & Febiger. 1928. Price \$11.00.

It has been a great pleasure to review Dr. Speed's

text on fractures and dislocations. His general principles dealing with the treatment, considered from various angles, are splendid. In saying this I have special reference to methods of reduction and fixation, both operative and nonoperative. His reasoning is logical and founded on broad experience and observation and is entirely sound. It is one of the very best texts bearing on fractures and dislocations.
J. G. H.

THE HEART IN MODERN PRACTICE. Diagnosis and Treatment. By William Duncan Reid, A.B., M.D., Assistant Professor of Cardiology, Boston University, School of Medicine, etc. Second edition revised and enlarged. 81 illustrations. Philadelphia and London: J. B. Lippincott Company. Price \$6.00.

This book is most practical, well written and certainly should be a part of every medical man's library. It covers the field of cardiology very thoroughly, beginning with the anatomy and physiology of the heart, taking up every important type of heart disease and discussing in detail the arrhythmias.

The treatment is most complete, discussing not only medication but diet and occupations for cardiacs. Too, the addition of case reports makes the book a most complete one in every detail of our present knowledge of cardiology.
A. M. G.

MODERN MEDICINE. Its Theory and Practice. William Osler, Bart., M.D., F.R.S., Late Regius Professor of Medicine in Oxford University, England, etc. Third edition, thoroughly revised. Edited by Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia, etc. Volume VI. Diseases of the Nervous System and Diseases and Abnormalities of the Mind. Illustrated. Philadelphia: Lea & Febiger. 1928. Price \$9.00.

This is the third edition of this standard system of medicine. No great changes appear in the volume on nervous and mental disease, except in the chapter on brain tumors, which has been largely rewritten. The disadvantages of having different topics treated by different writers are perhaps greater in this special field than elsewhere in medicine. Neurology possesses a well marked unity in structure and function which the present scheme does not sufficiently emphasize. Radical difference in point of view in the sections on hysteria and on traumatic hysteria is likely to be confusing unless the reader is familiar with the history and present status of opinions as to the psychoneuroses. The section on psychiatry is as good a condensed treatment of the subject as can be found.

As a work of reference for medical practitioners the volume is of great value. The subjects are treated by writers of authority, in a manner clear and definite.
E. T. G.

MODERN MEDICINE. Edited by Sir William Osler, Bart., M.D., F.R.S., Third edition. Reedited by Thomas McCrae, M.D. General Index. Philadelphia: Lea & Febiger. 1928. Price \$1.00.

This Index Volume of the third edition adds materially to the value of Modern Medicine, volumes 1 to 6, already reviewed in this column.

Although each volume carries a good index this general index links the five volumes together. The co-workers and publisher are congratulated on this complete work.
R. M. H.

A TEXTBOOK OF PATHOLOGY By W. G. MacCallum, Professor of Pathology and Bacteriology, The Johns Hopkins University, Baltimore. Fourth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1928.

This new edition of a well known textbook for students brings up-to-date material which has accumulated in large quantities during the last few years. An extensive revision has been done.

A. S. W.

THE PHYSIOLOGY OF EXERCISE. A Textbook for Students of Physical Education. By James Huff McCurdy, A.M., M.D., M.P.E., Director of Physical Education Course in the International Young Men's Christian Association College, Springfield, Massachusetts, etc. Second edition, thoroughly revised. Illustrated. Philadelphia: Lea & Febiger. 1928. Price \$3.00.

This small volume is the outgrowth of a series of lectures on physical education delivered to students in various parts of the country. It is divided into two parts.

Part 1 is devoted to a description of the "General Effects of Exercise Upon the Bodily Functions," which is explained in seven chapters. At the end of each chapter there is a bibliography comprising a circumspect selection from the voluminous literature on the subject under discussion, and also a number of searching questions elucidating the text.

Part 2 deals with the "Effects of Special Types of Exercise Upon Bodily Function," in eleven chapters with bibliography and questions at the end of the chapter as in Part 1.

There is every indication that the author is an able, highly trained and enthusiastic man who has spared no pains to make himself master of the subject. The book is crowded with facts presented in an orderly and convenient manner. There is a concentration and directness indicating authority and *mirabile dictu* without a trace of dictatorialness. If the modern students of physical education are so well trained mentally as to comprehend this learned, clearly written book, it is an indication of the high type of men and women that are entering this profession and presages great good for the future physical training of our youth. This is truly a 100 per cent. book and cannot be too highly recommended to students of physical education and the collateral sciences, and especially to physicians. It is well printed in clear legible type on good paper and neatly cloth bound.
A. R.

A PRACTICAL MEDICAL DICTIONARY. Of Words Used in Medicine With Their Derivation and Pronunciation, Including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance and Other Special Terms, etc. By Thomas Lathrop Stedman, A.M., M.D., editor of the "Twentieth Century Practice of Medicine" and of the "Reference Handbook of the Medical Sciences." Formerly editor of the "Medical Record." Tenth, revised edition. Illustrated. New York: William Wood and Company. 1928. Price \$7.50.

The tenth edition of Stedman's Medical Dictionary fully maintains the high character of previous editions. Nearly five hundred new medical terms have been included in the book and numerous old terms made to conform with the changed or changing usage. This volume contains about two hundred more pages than the first edition notwithstanding

ing the omission of many obsolete terms, discontinued pharmaceutical preparations and other indifferent matter. The appendix contains many important tables.

NEUROLOGICAL EXAMINATION. An Exposition of Tests With Interpretation of Signs and Symptoms. By Charles A. McKendree, A.B., M.D., Associate, Department of Neurology, College of Physicians and Surgeons, Columbia University, etc., with a foreword by Henry Alsop Riley, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1928. Price, cloth \$3.25.

This book contains all it claims. The tests are well explained and are further illustrated by photographs and drawings. Interpretation, which is the very difficult branch of neurological examination, is fully dealt with and based on anatomical drawings and diagrams. As a *vade mecum* for the student learning, under skilled guidance, the art of neurological diagnosis this book could prove of great help. But if one undertook to carry out the history taking and any considerable percentage of the tests he would necessarily have to limit himself to a very few patients.

We wonder how the daily records in a neurologist's file would compare with a complete examination recorded on the plan here outlined! But, as a guide and to establish a good diagnostic habit, the student may be induced to carry out the full program on a certain limited number of patients. One must not lose himself in a fog of multitudinous detail. The direct attack at the presenting and most obvious symptoms usually leads us to a correct diagnosis. Then if we fortify ourselves by eliminating other possibilities and bring up all supporting findings our position becomes comfortably secure.

This book should help us to do all of this.

M. A. B.

CRITERIA FOR THE CLASSIFICATION AND DIAGNOSIS OF HEART DISEASE. By the Heart Committee of the New York Tuberculosis and Health Association, Inc. New York: Paul B. Hoeber, Inc. 1928. Price \$1.50.

Impressed with the necessity for a uniform nomenclature in cardiac disease, a committee was appointed by the New York Tuberculosis and Health Association for the purpose of formulating the necessary criteria. Their conclusions are embodied in this little book of some ninety pages. Aside from uniformity of nomenclature, their most important recommendation is that in each case, the morbid condition should be diagnosed successively from its etiologic, anatomic, physiologic, and functional aspect. The book represents a real advance in the nomenclature of heart disease and deserves to be in active use in the record room and wards of every modern hospital.

A. E. T.

NURSES, PATIENTS, AND POCKETBOOKS. Report of Study of the Economics of Nursing Conducted by the Committee on the Grading of Nursing Schools. May Ayres Burgess, Director. New York City: Committee on the Grading of Nursing Schools. 1928.

A complete and detailed review of the nursing situation as it exists today, which acts as an eye-opener and gives many a shock to the reader.

The hospital superintendent who thinks he is a public benefactor because he is maintaining a school for nurses is woefully mistaken. Schools for nurses are maintained today because each student nurse

has a cash value to the hospital, and accomplishes a lot of hard work free of charge.

The economic situation of the nurse, the prospects for the future, and the unbelievable crowding in the nursing profession are nicely demonstrated.

Every doctor, nurse, and hospital administrator, should read this book.

W. C. G.

THE MEDICAL RECORD VISITING LIST OR PHYSICIANS' DIARY. For 1929, revised. New York: William Wood & Company, Medical Publishers. Price \$2.00.

The 1929 edition of the Medical Record Visiting List maintains the conveniences and completeness of former editions.

TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE.—The antitoxin used in the toxin-antitoxin mixture (New and Nonofficial Remedies, 1928, p. 366) is produced from the horse, goat or sheep.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (New Formula) (Sheep)—Squibb.—Each cubic centimeter represents 0.1 L+ dose of diphtheria toxin neutralized with the required amount of antitoxin obtained from the sheep. Marketed in packages of three ampules, each ampule containing 1 cc. of the mixture; in vials containing, respectively, 10, 20 and 30 cc.; and in packages of thirty 1 cc. ampules. E. R. Squibb & Sons, New York.

PARATHYROID HORMONE—Squibb.—A stable aqueous solution containing the active principle or principles of the bovine parathyroid glands and having the property of relieving the symptoms of parathyroid tetany and of increasing the calcium content of the blood serum. It is standardized physiologically. Parathyroid Hormone-Squibb is claimed to be specific for normal or parathyroidectomized man when injected subcutaneously for increasing the level of the blood serum calcium. It is marketed in 5 cc. vials. E. R. Squibb & Sons, New York.

TETANUS ANTITOXIN.—This tetanus antitoxin, concentrated (New and Nonofficial Remedies, 1928, p. 356) is also marketed in a syringe containing 20,000 units. Eli Lilly & Co., Indianapolis. (Jour. A. M. A., October 13, 1928, p. 1109.)

DIPHTHERIA TOXIN FOR THE SCHICK TEST.—This diphtheria immunity test (New and Nonofficial Remedies, 1928, p. 291) is also marketed in packages of two 10 cc. vials, sufficient for 100 test doses. Schick Test Control is also supplied in packages of one 10 cc. vial, sufficient for at least 100 tests. H. K. Mulford Co., Philadelphia.

TETANUS ANTITOXIN GLOBULIN.—This tetanus antitoxin, concentrated (New and Nonofficial Remedies, 1928, p. 356) is also marketed in piston syringe containers, containing 20,000 units. Parke, Davis & Co., Detroit.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE 0.1 L+ (Non-Sensitizing).—Each cc. constitutes a single dose of diphtheria toxin neutralized with the proper amount of antitoxin produced from goats (New and Nonofficial Remedies, 1928, p. 366 and THE JOURNAL, October 13, 1928, p. 1109). It is marketed in packages of three vials, each containing 1 cc.; in packages of one vial containing 10 cc.; and in packages of one vial containing 30 cc. United States Standard Products Co., Woodward, Wis. Jour. A. M. A., October 20, 1928, p. 1193.)

AMPOULES METAPHEN SOLUTION 1:1,000, 10 cc.—1 part metaphen (New and Nonofficial Remedies, 1928, p. 274) dissolved in 1,000 parts of water by means of sodium hydroxide (four molecules of NaOH for every molecule of metaphen). Abbott Laboratories, North Chicago.

DIPHTHERIA TOXOID—Squibb.—A diphtheria toxoid (Jour. A. M. A., August 4, 1928, p. 321) prepared from diphtheria toxin by treatment with formaldehyde as prescribed by the U. S. Public Health Service to secure detoxification. It is marketed in packages of one immunization treatment containing one 1 cc. ampule of diluted diphtheria toxin for the reaction test and two 1 cc. ampules of diphtheria toxoid for treatment. E. R. Squibb & Sons, New York. (Jour. A. M. A., September 22, 1928, p. 883.)

ETHYLENE—Cheney.—A brand of ethylene for anesthesia—N. N. R. (New and Nonofficial Remedies, 1928, p. 51). The Cheney Chemical Co. (Jour. A. M. A., May 5, 1928, p. 1444.)

LIPIODOL—Lafay.—Iodized Poppy-seed Oil 40 per cent.—An iodine addition product of poppy-seed oil containing 39 to 41 per cent. of iodine in organic combination. Lipiodol-Lafay is used as a contrast medium in myelography and pyelography, for detecting urethral strictures, in the spinal column for detecting tumors, and in other conditions for which roentgenologic exploration is desired. It is supplied in ampoules contained 1, 2, 3 and 5 cc. respectively. E. Fougere & Co., New York.

LIPIODOL RADIOLOGIQUE DESCENDANT—Iodized Poppy-seed Oil 35 per cent.—An iodine addition product of poppy-seed oil containing 34 to 36 per cent. of iodine in organic combination. In subarachnoid injection for roentgenray examination lipiodol radiologique descendant is used for the recognition of intradural tumors. E. Fougere & Co., New York.

LIPIODOL RADIOLOGIQUE ASCENDANT—Iodized Poppy-seed Oil 10 per cent.—An iodine addition product of poppy-seed oil containing 9.8 to 11.2 per cent. of iodine in organic combination. In subarachnoid injection for roentgenray examination, lipiodol radiologique ascendant is used for recognition of intradural tumors when it is desired to employ a contrast medium of lesser density than that of the spinal fluid. E. Fougere & Co., New York.

MEAD'S POWDERED BOILABLE PROTEIN MILK—A modified milk preparation having a relatively high protein content and a relatively low carbohydrate content. Each 100 Gm. contains approximately protein, 39 Gm.; butter fat, 27 Gm.; lactose, 24 Gm.; free lactic acid, 2 Gm.; ash, 6 Gm.; and moisture, 2 Gm. When suitably mixed with water, powdered boilable protein milk is useful for correcting intestinal disorders of infants and children. Mead Johnson & Company, Evansville, Ind.

ANTIRABIC VIRUS (Semple)—A phenol killed antirabic vaccine prepared according to the general method of David Semple (New and Nonofficial Remedies, 1928, p. 363). It is marketed in packages of fourteen doses, each dose consisting of 2 cc.; all the doses are of the same potency. Pasteur Institute of St. Louis, St. Louis. (Jour. A. M. A., May 19, 1928, p. 1627.)

STEARODINE—CALCIUM IODOSTEARATE.—It contains from 26 to 28 per cent. of iodine in organic combination. Stearodine is used as a substitute for the inorganic iodides, over which it is claimed to have an advantage in that it is longer retained and therefore better utilized. See Iodized Fats and Fatty

Acids, New and Nonofficial Remedies, 1928, p. 212. Stearodine is also supplied in the form of tablets, each containing stearodine, equivalent to 0.01 Gm. of iodine. Parke, Davis & Co., Detroit. (Jour. A. M. A., May 26, 1928, p. 1711.)

B. ACIDOPHILUS MILK—Adohr.—A milk culture of *B. acidophilus* which contains not less than 250 millions of viable organisms (*B. acidophilus*) per cc. at the time of sale. For a discussion of the actions and uses of bacillus acidophilus preparations see Lactic Acid-Producing Organisms and Preparations (New and Nonofficial Remedies, 1928, p. 228). Laboratory Division of the Adohr Creamery Co., Los Angeles, Calif.

PHANODORN TABLETS, 3 grains—Each tablet contains 3 grains of phanodorn (New and Nonofficial Remedies, 1928, p. 96). Winthrop Chemical Co., Inc., New York.

SOLUTION EPHEDRINE SULPHATE—P. D. & Co., 3 per cent.—A 3 per cent. solution of ephedrine sulphate—P. D. & Co. (New and Nonofficial Remedies, 1928, p. 178). Parke, Davis & Co., Detroit. (Jour. A. M. A., April 21, 1928, p. 1291.)

EPHEDRINE—Swan-Myers.—A brand of ephedrine—N. N. R. (New and Nonofficial Remedies, 1928, p. 174). It is also supplied in the form of Ephedrine Inhalant—Swan-Myers, a 1 per cent. solution of ephedrine in light liquid petrolatum. (Jour. A. M. A., April 28, 1928, p. 1377.)

PAROIDIN—Parathyroid Extract—Hanson.—An aqueous solution containing the active principle or principles of the parathyroid gland of cattle and having the property of relieving the symptoms of parathyroid tetany and of increasing the calcium content of blood serum. It is standardized by its capacity to increase the blood serum calcium in parathyroidectomized dogs. Paroidin is of pronounced and definite value in the treatment of tetany. To guard against the serious consequences of hyperthyroidism, excessive doses of paroidin must be avoided and large doses of the preparation must not be administered without estimation of the blood serum calcium. Paroidin is marketed in 5 cc. ampoules, each cc. containing 150 Hanson units. Parke, Davis & Co., Detroit.

SQUIBB'S VITAVOSE—A maltose-dextrin preparation representing the water-soluble extractives of malted wheat germ. It is composed, approximately, of maltose, 38 per cent.; dextrans, 20 per cent.; soluble proteins, 8 per cent.; soluble amino and other nitrogenous substances, 7 per cent.; mineral salts, 4 per cent.; moisture, 3 per cent. It is standardized physiologically to contain at least 100 times the amount of the antineuritic factor (vitamin B) contained in fresh, raw, certified, whole cow's milk. Vitavose is used as an adjunct in the diet of children and invalids and where there is a need for greater amounts of vitamin B than are furnished by the individual's customary diet. E. R. Squibb & Sons, New York.

GENTIAN VIOLET CAPSULES—Swan-Myers, 1 grain.—Each keratin coated capsule contains gentian violet medicinal (New and Nonofficial Remedies, 1928, p. 172) 0.65 Gm.; with lactose. Swan-Myers Co., Indianapolis.

CAPSULES EPHEDRINE HYDROCHLORIDE—Pemco, $\frac{1}{4}$ grain.—Each capsule contains ephedrine hydrochloride—Pemco (New and Nonofficial Remedies, 1928, p. 176) $\frac{1}{4}$ grain. Prophylacto Mfg. Co., Chicago.

CAPSULES EPHEDRINE HYDROCHLORIDE—Pemco, 0.3 Gm.—Each red capsule contains ephedrine hydro-

chloride—Pemco (New and Nonofficial Remedies, 1928, p. 176) 0.3 Gm. Prophylacto Mfg. Co., Chicago. (Jour. A. M. A., July 7, 1928, p. 28.)

GLASEPTIC AMPOULES SOLUTION GLUCOSE, 50 per cent., 20 cc.—Each ampule contains dextrose, U.S.P., 10 Gm., in distilled water, to make 20 cc.; buffered with sodium citrate, 0.25 per cent. Parke, Davis & Co., Detroit.

GLASEPTIC AMPOULES SOLUTION GLUCOSE, 50 per cent., 50 cc.—Each ampule contains dextrose, U.S.P., 25 Gm., in distilled water, to make 50 cc.; buffered with sodium citrate, 0.25 per cent. Parke, Davis & Co., Detroit. (Jour. A. M. A., June 16, 1928, p. 1945.)

BISMUTH SODIUM TARTRATE—Searle.—A basic sodium bismuth tartrate containing from 72.7 to 73.9 per cent. of bismuth. Its use is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (See Bismuth Compounds, New and Nonofficial Remedies, 1928, p. 104). The product is administered by intramuscular injection. It is supplied in the form of 2 cc. ampules containing bismuth sodium tartrate—Searle, 0.03 Gm., benzyl alcohol, 0.040 Gm., sucrose, 0.5 Gm. in water sufficient to make 2 cc. G. D. Searle & Co., Chicago.

TABLETS EPHEDRINE HYDROCHLORIDE—Abbott, $\frac{1}{4}$ grain.—Each tablet contains ephedrine hydrochloride—Abbott (New and Nonofficial Remedies, 1928, p. 176) $\frac{1}{4}$ grain. Abbott Laboratories, North Chicago.

CAPSULES EPHEDRINE SULPHATE—P. D. & Co., 0.05 Gm. ($\frac{3}{4}$ grain).—Each capsule contains ephedrine sulphate—P. D. & Co. (New and Nonofficial Remedies, 1928, p. 178) 0.05 Gm. Parke, Davis & Co., Detroit.

GLASEPTIC AMPOULES EPHEDRINE SULPHATE—P. D. & Co., 0.05 Gm. ($\frac{3}{4}$ grain), 1 cc.—Each ampoule contains ephedrine sulphate—P. D. & Co. (New and Nonofficial Remedies, 1928, p. 178) 0.05 Gm. in 1 cc. Parke, Davis & Co., Detroit. (Jour. A. M. A., June 30, 1928, p. 2103.)

EPHEDRINE HYDROCHLORIDE—Squibb.—A brand of ephedrine hydrochloride—N. N. R. (New and Nonofficial Remedies, 1928, p. 175). E. R. Squibb & Sons, New York.

SYRUP EPHEDRINE HYDROCHLORIDE—Swan-Myers.—A syrup containing ephedrine hydrochloride—Swan-Myers (New and Nonofficial Remedies 1928, p. 176) 0.2195 Gm., in 100 cc. ($\frac{1}{2}$ grain per fluidrachm) and alcohol 12 per cent. Swan-Myers, Co., Indianapolis.

POTASSIUM BISMUTH TARTRATE WITH BUTYN—D. R. L., 20 cc.—Each cc. contains potassium bismuth tartrate—D. R. L. (New and Nonofficial Remedies, 1928, p. 110) 0.1 Gm.; butyn, 0.6 per cent.; and metapfen, 0.01 per cent. suspended in expressed oil of almonds. Abbott Laboratories, North Chicago.

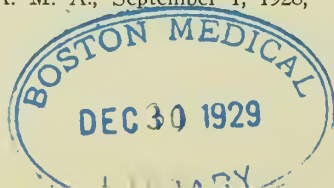
SCARLET FEVER STREPTOCOCCUS TOXIN FOR SKIN TEST—P. D. & Co.—It is prepared by the method of Drs. Dick by license of the Scarlet Fever Committee, Inc. (New and Nonofficial Remedies, 1928, p. 392.) It is marketed in single 1 cc. vial packages, containing sufficient toxin for ten tests. Parke, Davis & Co., Detroit. (Jour. A. M. A., September 1, 1928, p. 645.)

ERYSIPELAS STREPTOCOCCUS ANTITOXIN (Lederle) Refined and Concentrated.—An erysipelas streptococcus antitoxin (New and Nonofficial Remedies, 1928, p. 353) prepared by immunizing horses by subcutaneous injections of the toxic filtrate obtained from broth cultures of the erysipelas streptococcus, or by intravenous injection of cultures of the erysipelas streptococcus obtained from typical cases of erysipelas. It is marketed in packages of one syringe containing one basic dose. Lederle Antitoxin Laboratories, New York.

PROPAGANDA FOR REFORM

OVARIAN HORMONES AND OVARIAN ORGANOTHERAPY.—The evidence from the experimental laboratories and the clinics, accumulated especially during the last few decades, points to the conclusion that the mammalian ovaries exercise their influence on the so-called secondary sex characters and the sex life of the mammalian female through the mechanism of the hormone or hormones produced by some element in the ovary. It is therefore rational to treat or attempt to treat symptoms due or presumably due to ovarian insufficiency by substitution therapy. Summing up the extensive clinical trials with ovarian preparations, generally administered orally, Novak, in 1924, stated that the results are rarely striking and often nil to the level-headed observer. Much work has been done on the separation and concentration of the so-called follicular ovarian hormone and preparations have been obtained which, when administered parenterally, are reliably reported to stimulate uterine growth and to introduce changes similar to estrus in spayed animals. To date the use of such preparations on patients has been neither extensive nor encouraging. The various ovarian hormone preparations that now seem sufficiently purified to be introduced hypodermically without serious results to the patients should be given trial in definitely uncomplicated ovarian deficiency in order that more may be learned as to their actual effects. (Jour. A. M. A., October 20, 1928, p. 1194.)

MU-SOL-DENT.—This is marketed by the V. B. Corporation of Pittsburgh, Pa., as "the only existing nonirritating efficient solvent of mucin and mucus." It is said to be "efficient in the prevention and treatment of sore throat and colds" and a product that will greatly hasten the healing of wounds and burns. Especially it is recommended for the removal of mucin plaques and film on teeth. The national organization of dentists has recently turned its attention to the problem of giving its members and the public the facts regarding widely advertised medicinal preparations in the dental field and the first preparation analyzed by its chemist (working in the A. M. A. Chemical Laboratory) is Mu-Sol-Dent. It was found to be essentially a solution of common salt, potassium chloride and trisodium phosphate in water. There is present also essential oils and coloring matter. And this is the preparation that is said to prevent tooth decay, tartar and pyorrhea, and to be good for catarrh, hay-fever and sore throat. (Jour. A. M. A., October 20, 1928, p. 1211.)



THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

FEBRUARY, 1929

NUMBER 2

E. J. GOODWIN, M.D., EDITOR
901 Missouri Building, St. Louis, Mo.

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ORIGINAL ARTICLES

INDUSTRIAL EYE INJURIES*

REPORT OF CASES

EMMETT P. NORTH, M.D.

AND

VINCENT L. JONES, M.D.

ST. LOUIS

Our day may well be called the mechanical age and with the ever increasing use of mechanical contrivances there is a proportionate increase of eye injuries. Today there is no hamlet, no matter how small, but that can boast of a flourishing garage and the larger centers have industries employing the major portion of their population in the mechanical trades. It is because of this ever increasing exposure to mechanical injuries that this paper is considered timely. It is the general practitioner who in the vast majority of instances first attends the injured and it is his responsibility to see that these cases receive appropriate treatment. It is upon his experience and judgment that the ultimate result depends. He is the one who must decide what is to be done with the case, he is the one who is forgotten when a happy result is obtained, and he is the one who is condemned when an unfortunate disability follows. He is the one who must have the wisdom of a Solomon and the patience of a Job and it is to him that we dedicate this paper with the hope that it may be of some service to him in the care of the ophthalmic cases that fall to his lot. He cannot send every ophthalmic case to the city nor can he keep every ophthalmic case under his own care; his decision as to the proper disposition of the case must be made immediately, for eye conditions permit of no procrastination. The initial treatment is often the one that means the difference between permanent disability or none, or at least materially affects the degree of that disability.

In order to arrive at any proper decision we must first of all know the condition of the eye in question. A knowledge of the circumstances of the accident is most important and because of this a detailed history is necessary; for the potentialities are quite different if the eye has been struck by a bolt or by a particle chipped from that bolt. Then there must be an inspection of the eye, this examination to be as thorough as possible and usually best made after the instillation of a few drops of 4 per cent. cocain hydrochloride solution. It is often surprising to observe how complete an examination can be made after a little anesthesia has been obtained, and how vain if not positively dangerous is an attempt to examine a painful eye without first anesthetizing it.

Having obtained an accurate history you know what to expect and after making a careful examination you know what the condition is, then the disposition of the case depends upon your experience and judgment. The majority of mistakes in practice are directly attributable to failure to take an adequate history or make a proper examination or both. Experience and judgment in emergencies can properly be called common sense and all of us are sufficiently endowed with that gift, but fail in giving it the proper premises upon which to work.

The eye that has been maserated is not a problem; it is the eye with the so-called minor or superficial injury that is a real problem and it is this class of cases that you will be called upon with increasing frequency to treat or make disposition of. These cases range from dirt or foreign bodies in the conjunctival sac to contusion and wounds of the globe. The foreign body in the sac may be washed out by the tears or readily removed with a whisp of cotton, but they may become lodged under the upper lid and scratch the cornea until removed, which removal is readily accomplished after everting the upper lid; or they may become embedded in the bulbar conjunctiva or the cornea. In the former instance they are best removed by encompassing them with a forceps and excising the whole pinch with a scissors.

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

The foreign bodies embedded in the cornea require more care and skill in removal, for any unnecessary loss of tissue means so much more of an opacity which, depending upon its location, will cause a greater or less loss of vision.

These are all called superficial injuries but all of them have potentialities that are enormous. The simple scratch or abrasion of the cornea in the presence of infection may become a most virulent ulcer within 24 hours—and as the conjunctival sac normally contains numerous microorganisms of all degrees of virulence, we must consider all abrasions as potential ulcers until healed. Fortunately the blood supply of the eye is so abundant that the normal resistance is usually adequate to successfully combat invasion and we can be satisfied with a bland solution that will be sufficient to wash out the conjunctival sac. We habitually use normal saline or saturated solution boric acid for this purpose. However, if there is a blepharitis or a dacryocystitis present we must be more energetic in our treatment, never forgetting that the more active germicides have an injurious effect upon the cornea. Our procedure is to cleanse the lid margins, conjunctival sac and lacrimal sac as thoroughly as possible and instill 1 per cent. aqueous solution of mercurochrome every three hours. The treatment of ulcer we will take up later.

Wounds of the Conjunctiva.—Small lacerations of the bulbar and palpebral conjunctiva are satisfactorily handled without suturing, but extensive wounds and wounds of opposed surfaces must be sutured. Of course any wound involving the lid margins must be sutured carefully for at best an indenture usually follows and predisposes to one or more cilia brushing the cornea with resultant discomfort and danger.

Burns of the lids and globe may be divided into physical, chemical, and electrical. Those due to physical (scalding, molten metal, etc.) may range from a simple, first degree burn to a complete loss of the organ and adnexa or parts thereof and as in all cases of such burns an immediate appraisal of the extent of the damage is usually accurate. With chemical and electrical burns, however, the ultimate destruction may not be apparent for a week or longer. The treatment of burns due to physical agents requires no special comment but the chemical burns and especially those due to lime have to be handled energetically at the earliest possible moment. In lime burns the most urgent need is to cleanse the conjunctival sac completely of all particles; and here it is well to note that invariably lime particles are found embedded in the conjunctiva of the upper lid and of course the corrosive action upon the cornea continues until the last particle has been

removed. Then the general treatment of thoroughly washing the sac with saline, boric acid or weak bicarbonate solution, is followed. In the case of acid burns of course the weak bicarbonate solution is indicated, but whether the chemical agent causing the burn is an acid or an alkali the thing of paramount importance is to wash out the sac as thoroughly as possible and as quickly as possible and not wasting valuable time to get a neutralizing solution. If nothing else is at hand use tap water and plenty of it. Various refinements, as for instance the use of ammonium tartrate for lime burns are not within the scope of this paper; but get the exciting cause removed as soon as possible, then use oil, olive or ricini or petrolatum generously, and if the burn is severe instill some atropin into the conjunctival sac, then cold applications for about twenty-four hours, after which warm applications are usually more grateful to the patient, always keeping the conjunctival sac well supplied with oil.

Electrical burns usually sustained from unprotected exposure to electric welder, fuse flash, etc., become manifest some hours after exposure and usually are limited to the external eye, but at times cause degenerative changes in the more delicate internal structures. The edema and erythema of the lids and conjunctiva with the extreme itching and scratching are best combated by cold applications.

Contusions may be divided into (1) those not affecting the globe. Here we have injuries varying from simple contusion of the external soft parts surrounding the globe to fractures of the bones forming the orbital cavity, which latter if involving the optic foramen may cause blindness due to injury to the optic nerve; and (2) contusions of the globe itself either with or without injury to surrounding parts. It is the latter class of cases that affords the most shocking surprises for the medical attendant, for the injury may be apparently most trivial yet cause a rupture at the macula by contrecoup with loss of central vision or an intraocular hemorrhage, detachment of the retina, traumatic iritis, dislocation of the lens, traumatic cataract, etc.

In any contusion about the eye no matter how trivial it may seem the vision of that eye should be taken, and of course an ophthalmoscopic examination made if possible.

Penetrating wounds are divided into those complicated by intraocular foreign bodies and those without complications.

Penetrating wounds usually are complicated by prolapse of iris or damage to the ciliary body, lens or retina and chorioid and escape of vitreous. The zone 3 mm. posterior to the limbus is known as ciliary or danger zone and

wounds here are especially dangerous because of the much feared sympathetic ophthalmia. The amount of vitreous that may be lost without losing the eye is variable, but a fairly good working standard is that whenever the globe is appreciably shrunken the eye may be considered lost. Wounds of the cornea offer a much more favorable prognosis than those of the sclera and in the former a prolapse of the iris is usually found. If the iris is clean and the wound recent the iris is pushed back if possible and eserine instilled in order to contract the pupil and thus minimize the probability of recurrence of the prolapse. If the wound is of longer standing or the tag of iris grossly contaminated it is best to excise the prolapse then. Whether the iris has been returned to the anterior chamber or the prolapse excised a conjunctival flap is sutured over the corneal wound. We use mercurochrome generously, bandage both eyes and keep patient in bed. Any indication of iritis of course calls for energetic use of atropin.

Wounds of the sclera if extensive require suturing of the sclera and then overlapping conjunctiva and suturing it independently thus burying the scleral sutures. This minimizes the probability of hernia of the wound. If scleral wound is not so extensive it will suffice simply to suture the conjunctiva as the more manipulation the greater the amount of trauma and probable injury to the interior eye and loss of vitreous. Small wounds of the sclera if sutured soon after occurrence offer a fairly good prognosis but larger wounds are always associated with so much loss of vitreous that they are practically hopeless.

Of course, as you all know, the dangers of infection are much greater in wounds of the sclera than of the cornea. If the globe is not lost from the escaping vitreous the infection accomplishes that unfortunate result. However, it is surprising how often an apparently hopeless eye can be saved to useful vision if appropriate treatment is instituted and patiently followed out.

Penetrating wounds with retention of a foreign body within the globe are always most serious and call for the highest degree of skill in their treatment. This class of cases is divided into those in which the foreign body is magnetic and those in which the foreign body is nonmagnetic, the latter group including both metallic and nonmetallic substances.

Every case of penetrating injury demands an X-ray examination and an ophthalmoscopic if possible. If a foreign body is shown it is localized, usually according to the method of Sweet. If no foreign body is shown by X-ray and ophthalmoscope, then whether we treat it

as a simple penetrating wound or try to "fish" out the foreign body depends upon the condition of the eye, the history, etc. Usually the procedure is to give the benefit of the doubt to nonretained foreign body, for to fish around blindly for an unknown foreign body will in all probability nullify any chance the eye has for recovery. With the localization of a metallic foreign body within the eye we have to decide whether we will attempt to withdraw it with a magnet via the route of entry or whether we will have to do otherwise. With a strong magnet we are often enabled to have the foreign body retrace its path and deliver it through the wound of entry, but with weaker magnets a counter incision with delivery through this incision is usually required. If the foreign body is localized within the lens the latter is usually fairly well opacified within 36 to 52 hours, then we make a corneal incision as for cataract extraction, wash out the lens substance, and if foreign body is not obtained in this manner, then apply the magnet. The reason for washing out the lens substance first is that if the foreign body has a broader side it is possible that under the influence of the magnet too much tension will be put on the zonule and in rupturing the posterior capsule we will have an escape of vitreous or at best a hernia of the vitreous into the anterior chamber, a condition not at all desirable. If the foreign body proves to be nonmagnetic then we must "fish" for it, using our localization as a guide.

Wounds of the lids require immediate repairing as far as possible. A little care in the immediate repair will usually give a satisfactory result whereas neglect of proper lid repair immediately following accident renders necessary more or less extensive plastic work later. Wounds involving the orbit other than those including the bulbus oculi demand a high degree of "common sense" for the wound must be cleansed and the removal of all foreign matter is urgent, but unnecessary probing, tearing, irrigating, etc., cannot be too strongly condemned for it is very easy to break into the periorbital fat and thus open up unlimited possibilities of damage. If a periorbital infection develops it must be opened and drained. All these cases are best handled as bed patients.

Sympathetic ophthalmia, the nightmare of ophthalmologists, is fortunately at the present time not often met in practice simply because certain conditions predisposing to its development are generally understood and accepted. We know that a penetrating wound through the ciliary body will probably set up a sympathetic ophthalmia in the other eye if the injured member is not removed. A globe that is degenerating and shrinking following injury is a threat

upon the unaffected eye and as the usefulness of the injured eye is already nil or will be so within a short time there really is no reason why it should not be enucleated immediately and thus remove the danger to the unaffected eye. This procedure is universally followed and we only mention it here as something you all understand and not as anything new.

The treatment of sympathetic ophthalmia other than the prophylactic is not within the purpose of this paper and hence we will only mention it briefly. If sympathetic ophthalmia has already developed then the highest degree of specialized experience is required, as the battle is at best a losing one and requires of the medical attendant all of the experience, resourcefulness, courage and patience obtainable.

A Word as to the Estimation of Amount of Visual Acuity.—The accepted method of expressing visual acuity is by the fractions 20/20, 20/30, etc., the numerator being the distance the individual tested is from the test chart and the denominator representing the distance the average normal eye should be from the test chart to read the same line that the individual tested reads. These fractions expressing visual acuity do not represent percentages of normal vision, as has been erroneously interpreted, especially since the workmen's compensation law was enacted, but are merely our way of noting the smallest or lowest line the individual being tested reads, whereas the tables of percentage loss of vision for compensation purposes is quite different. For instance 20/20 equals 100 per cent. visual efficiency and 20/40 equals 83.6 per cent. visual efficiency and not 50 per cent. loss as has been erroneously concluded. Eighty per cent. loss, or 20/200 by Snellen acuity notation, is contended by some to be equivalent to loss of an eye and should be compensated for accordingly. A similar condition is in an aphacic eye, that is one without its crystalline lens, as we would have after removal or absorption of a traumatic cataract. These aphacic eyes requiring lenses of such high refractive power and being devoid of power of accommodation cannot function with an unaffected fellow to give single binocular vision and consequently the eye should be considered industriously blind. Single binocular vision must always be considered in the equitable adjusting of compensation and unless this is borne in mind we are apt to grade the individual simply on the degree of macular visual acuity and overlook the fact that the injured eye may cause a far greater handicap through blurring of the vision of the unaffected eye than the actual visual impairment of that injured eye would indicate. The eyes must always be considered as a team and as one of a

team may not be a help, but be an actual hindrance, so it is with the eyes, one may actually cause a blurring of the vision of its fellow.

Scars on the cornea when immediately below, above or to either side of the pupillary center cause a disability greater than the Snellen visual acuity notation would indicate and in estimating the amount of disability the peripheral vision must be considered. For a workman to have any portion of his peripheral vision completely or partially obstructed most certainly increases the hazard of his work and consequently deserves compensation to that extent.

Small scars of or near the center of the cornea may cause a very high degree of visual impairment and scars or defects of the iris will cause, through glaring or dazzling, a much higher degree of disability than the Snellen notation would indicate; and so for intraocular injuries the probable ultimate disability may be far greater than the simple acuity loss percentage would indicate. So we feel that a "rule of thumb" cannot be applied to the eye in estimating the amount of compensation. Each case is individual unto itself and should be so considered.

The compensation boards are striving to make their adjustments as equitable as possible and a visual acuity standard must enter all considerations, but it is not the sole factor to be considered, and to give a man no more for an eye than for a leg is absurd, for when an eye is lost you cannot obtain a serviceable substitute and we must, in fairness to our fellows, consider this subject from that point of view.

REPORT OF CASES

G. J., age 26, white, laborer. Chip from cold chisel struck left eye, March 12, 1927. Treated by local physician two days, then sent to us. On March 15 examination revealed vision of left eye limited to light perception with good projection; linear wound of cornea 3 mm. in length, situated vertically midway between pupillary center and left limbus 9 o'clock. Anterior chamber obliterated. No wound of iris and pupillary margin of iris intact. Soft, fresh intumescent cataract observed at pupil. X-ray localizes metallic foreign body 7 mm. behind and 3 mm. above center of cornea. Diagnosis, intraocular metallic foreign body with traumatic cataract. Atropin pushed until maximum dilatation of pupil obtained. Later a corneal section made, lens substance washed out and magnet tip applied to lips of section with delivery of piece of steel 3x1.25 mm. Iridectomy was not necessary. This patient made an uneventful recovery and today has with correcting lenses vision left eye 20/16; an addition of +3.00 is required for reading; vision right eye = 20/13 and Yeager No. 1 at 14 inches.

Because the left eye is aphacic and as compensation is estimated without correcting lenses this patient received full compensation for loss of the eye.

F. W., whilst fishing was struck in left eye by fish

hook resulting in penetrating injury, the wound of entry at limbus 8:30 o'clock and wound of exit 2 mm. below pupillary center. Iris and lens not injured.

Dr. T. W. Cotton, Van Buren, first attended patient and removed the hook, which had been in eye about one hour, by clipping off the barb. He then sent patient to St. Louis. This patient made an uneventful recovery and today has vision right eye 20/16; vision left eye 20/16. The lens escaped injury.

M. J., girl, age 6, fell down stairs with glass in hands resulting in penetrating injury to right eye with prolapse of iris. An iridectomy with conjunctival flap placed over wound was done and today vision of right eye is 20/16. The lens escaped injury.

These cases are cited merely as examples of happy results in different types of injury, each requiring a different method of procedure. Similar cases may at any time occur in the practice of any physician.

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DISCUSSION

DR. W. L. SMALL, Kansas City: Dr. North said that I would "dilate." I am not going to dilate on the method of figuring compensation because I haven't sufficient time to do so. I shall, however, refer you to an article which I have written and which will appear in our *STATE JOURNAL* in June, entitled "Industrial Visual Efficiency Loss." That article has in it that which I would like to say this evening.

One point in particular I do want to stress. In reporting your eye injuries to the commission, remember that the commission doesn't care for you to estimate the amount of lost vision. If you choose to do so, it is all right to do it, but it doesn't help the commission at all.

The one thing that does help the commission and makes it possible for them to make proper and prompt awards is for you to report the three primary visual factors. Central visual acuity, which is divided into central visual acuity for distance of twenty feet, and central visual acuity for a distance of fourteen inches. Next, we should take the visual field in the usual manner with the perimeter, using a white target. Instead of giving the usual field chart, we give the eight principal radial limits of the visual field, expressed in degrees. We must make this report in this manner if we propose to turn in a proper report to the commission on eye injuries.

The sum, expressed in degrees, of the eight principal radii of a normal field amounts to 420. If we have only 210, as the sum of the eight principal radii of the field measured, we should divide 210 by 420 which will give us 0.50 or 50 per cent., the visual field efficiency of the field measured.

That is a very simple procedure and I have attempted to show by the use of a published questionnaire with answers exactly how to proceed to comply with the recommendation of the committee on compensation for eye injuries of the Ophthalmological Section of the A. M. A., and with our revised Bulletin No. 5 of our Workmen's Compensation Commission. Every man who reports an eye injury should write first to the Ophthalmological Section of the A. M. A. and request the 1925 report.

Every step is illustrated in this report. In the main, most all commissions in the United States have adopted that report. I think they should all adopt it. It is a most excellent one and I would like

to have time to tell you why I think it is excellent, but my allotted time will not permit.

The third and last visual factor I must mention. It is the extraocular muscle function. It has to do only with identifying and expressing the fractional portion of the binocular motor field wherein diplopia exists.

For a complete method of procedure in reporting ocular injuries, again I refer you to my paper "Industrial Visual Efficiency Loss." (*THE JOURNAL*, June, 1928.)

CONJUNCTIVITIS*

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Conjunctivitis is an inflammation of the conjunctival membrane. It assumes so many different forms that it is first necessary to have in mind the appearance of the normal conjunctiva.

There are three cardinal signs of conjunctivitis which we must learn; these are: redness, swelling and abnormal secretion. The main symptoms are, smarting pain with frequent sensation of a foreign body and photophobia. Having thus established the presence of these three cardinal signs and symptoms, we assume that the patient has a conjunctivitis but, as yet, we do not know the morbid process that brought about this condition.

To determine the type and etiology it is first necessary to get an accurate history; its duration, type of work patient does, what the patient had been doing just previous to onset, whether some foreign substance had recently entered the conjunctival sac, etc.

To get a complete clinico-anatomical picture of conjunctivitis one must bear in mind that a biologic law takes part in inflammations of the conjunctiva, the significance of which demands attention if we are to understand ophthalmic pathology and keep pace with the progress of ophthalmic therapy. Every conjunctivitis is simply the expression of a reaction between the organism and the mucous membrane, on one hand, and the morbid factor that causes inflammation on the other. Pre-eminently among the latter are microorganisms, and the inflammatory reaction produced depends on the local and general susceptibility of the individual as well as of the virulence of the morbid agent. So, also, is this true of physicochemical substances.

A conjunctivitis may be caused either by a purely physicochemical irritant or by an infection. It must be understood that the chemical, toxic effect of the bacteria and of their metabolic products are present in bacterial infections. Furthermore, it must be borne in

*Read before the Nodaway County Medical Society, August 10, 1928.

Table 1. *The Differential Diagnosis Between Acute Conjunctivitis, Acute Iridocyclitis and Acute Glaucoma*

<i>Conjunctivitis</i>	<i>Iridocyclitis</i>	<i>Glaucoma</i>
1. Vision not impaired	1. Vision impaired slowly	1. Vision impaired rapidly
2. Lids may or may not be swollen	2. Lids swollen only when cyclitis is severe	2. Lids edematous
3. Photophobia usually slight	3. Photophobia usually marked	3. Photophobia slight
4. Mucopurulent discharge	4. Discharge of lachrymal fluid	4. Lacrimal fluid only
5. Sensation of foreign body, itching, burning, etc.	5. Severe pain extending to branches of fifth nerve	5. Severe pain extending to branches of fifth nerve, nausea and vomiting in severe cases
6. Ocular and palpebral conjunctiva injected. Injection deepest in retrotarsal folds and confined to superficial vessels	6. Ocular conjunctiva injected. Injection deepest around cornea and includes deep vessels	6. Ocular injection deepest around cornea; superficial veins stand out and are raised
7. Lids stick together in morning	7. Absent	7. Absent
8. Cornea normal	8. Cornea usually normal. May have deposits on posterior surface of cornea	8. Cornea steamy, edematous and anesthetic
9. Iris not discolored	9. Iris discolored and muddy in appearance	9. Iris slightly discolored
10. Pupil normal	10. Pupil contracted and sluggish	10. Pupil dilated and immobile; frequently greenish hue
11. Tension normal and globe not painful to pressure of fingers	11. Tension may be slightly increased with pain to the pressure of fingers	11. Tension markedly increased
12. Anterior chamber and contents normal	12. Anterior chamber of normal depth but aqueous cloudy	12. Anterior chamber shallow; aqueous turbid.
13. No exudate into pupil and no adhesions	13. Exudate into pupil and posterior synechia	13. No exudate; synechia rare
14. Pupils regular and round	14. Pupil irregular as result of synechia	14. Pupil regular but may be a little oval
15. No colored rings around light	15. No colored rings around light	15. Colored rings around light
16. Fields of vision normal	16. Fields of vision practically normal	16. Fields of vision contracted on nasal side
17. Fundus shows no characteristic change and view unobstructed with ophthalmoscope	17. Exudation into pupil and aqueous obstructs view with ophthalmoscope	17. Corneal changes obstruct view with ophthalmoscope but if seen show characteristic cupping of optic nerve head
18. Result of local infection and at any age	18. Result of systemic infection and most frequent in early life	18. Associated with change in blood vessels (arteriosclerosis), therefore most frequent in later periods of adult life. Rarely under forty
19. Microscopic examination of discharge may show specific microorganisms as mentioned above	19. No specific microorganism	19. No specific microorganisms

mind that a mucous membrane injured by chemical, allergic or physical means invites bacterial invasion so that the two factors may form the most varying alliances. But it is better just now, for practical reasons, to consider these two causative agents separately, because we then obtain a viewpoint at once from which to select the line of our investigation of the etiology of the conjunctivitis.

The question now confronting us is to determine whether the inflammation of the conjunctiva is due to purely physicochemical causes or to infection. The fact is, that quite a number of acute and chronic inflammations of the conjunctiva are caused by physicochemical irritants. Thus, foreign bodies of any kind may excite severe inflammations of the eye. Exposure to dust-laden air is capable of exciting such a conjunctivitis. Eyes reddened by nocturnal celebrations are not altogether unknown to us.

Another form of conjunctivitis may be caused by caterpillar hairs. The most violent conjunctivitis may be excited by dust mixed with such hairs where the procession caterpillars congregate.

In hay fever the acute conjunctivitis is caused by particles of pollen from the grasses lodging in the conjunctiva of a person hypersensitive to that particular pollen. Likewise, the pollens from various flowers have a sim-

ilar irritating effect. In fact, most conjunctivitis that recurs in the spring, summer or fall is of this type. That is true even though the patient may not have true hay fever. In this category we must also include vernal catarrh. This is also a pollen disease causing a cobble-stone follicular hypertrophy with occasional vegetation around the limbus, and likewise phlyctenular conjunctivitis, which is due to a hypersensitivity to tuberculo-protein. A severe conjunctivitis may also be caused by certain ingredients of face powder or other cosmetics in persons hypersensitive to those particular substances. Perhaps the most common of these is orris root.

Herpes of the lid margins and of the conjunctiva is responsible for a certain number of cases. The pain in herpes is quite severe. Acne rosacea frequently affects the conjunctiva in patients with a predisposition to the disease. Angioneurotic edema may affect the conjunctiva as well as any other part of the body.

Diseased accessory sinuses may cause a passive congestion of the conjunctiva and thereby precipitate a conjunctivitis without an active invasion of this membrane by bacteria. This type may be acute, recurrent or chronic in type.

It is self-evident that all chemically irritating substances may excite an inflammation of the conjunctiva. In practice, we meet with

such cases as the dust from lime, cement, artificial fertilizers, snuff, etc. Malingerers and hysterical persons not infrequently place substances of this sort in the conjunctival sac intentionally. There are also drugs which may be responsible for conjunctivitis. Even so necessary a remedy as atropin may excite a conjunctivitis in persons who have developed a hypersensitivity to it. In severe atropin irritation one gets a follicular hypertrophy with a brawny discoloration of the skin of the lids. Mercurials instilled into the eye of a patient taking potassium iodid internally may form mercuric iodid in the conjunctival sac. This is very irritating to the eye and will set up a severe conjunctivitis.

In many occupations, forms of conjunctivitis are met with that are traceable to radiant heat, ultraviolet rays, etc. In this category belong the welder's conjunctivitis, snow blindness, Klieg eye of actors, etc. In these types the pain is usually very severe and is associated with a severe photophobia.

The treatment of all the above cases is, first, to remove the cause if that be possible. In the case of hay fever and vernal catarrh, estevin, used in the eyes three or four times a day, relieves the symptoms as well as any other preparation. The following year the patient should be tested to ascertain those pollens to which he is sensitive and should be immunized with the pollen in question, if possible before the season. In a great number of such cases calcium and parathyroid may ward off the symptoms entirely. In patients with a hypothyroid a small dose of thyroid extract with the parathyroid is very efficacious.

The percentage of cases in which the conjunctivitis is due to bacterial infection is still greater. It may be said that more than two-thirds of all inflammations of the conjunctiva are caused by bacteria. The history helps us to determine whether the conjunctivitis is due to physicochemical irritation or to an infection, but the real cause can be determined only by a bacteriological examination of the secretions or of the epithelial surface of the conjunctiva, by which we learn whether bacteria that excite inflammation are present or not. Frequently it may even be necessary to resort to differential cultures.

The conjunctival sac is usually not sterile. If one seeks long enough he will find such organisms as the xerosis bacillus, staphylococcus, etc., in normal conjunctiva. However, the organisms we are interested in are those that usually are pathogenic to the conjunctiva.

The most common infecting organisms of conjunctivitis are pneumostreptococcus, Koch-

Weeks bacillus, influenza bacillus, Morax-Axenfeld diplobacillus, staphylococcus and gonococcus.

In pneumococcus conjunctivitis the inflammation develops very rapidly and as a rule both eyes are affected. The margins of the lids become rosy and edematous and the bulbar conjunctiva particularly becomes red. Indistinct, small hemorrhages appear in the bulbar conjunctiva, which soon assumes a yellowish color and the lids usually stick together in the morning. It usually is self-limited and clears up spontaneously by cleaning the eye several times a day. However, a certain number of cases develop complications or go into a chronic form that may be quite resistant. Consequently, it is advisable to treat all cases of pneumococcus conjunctivitis with a 1 per cent. silver nitrate and give the patient 1 per cent. solution of optochin to use at home, so as to avoid complications or the disease itself becoming chronic.

The course of conjunctivitis caused by Koch-Weeks bacillus is very similar to the above, except that the secretion is usually more marked than in pneumococcus. There may also be seen little blebs on the limbus with infiltrates of the cornea. Conjunctivitis caused by the influenza bacillus is very similar and responds to the same treatment, that is, 20 per cent. protargol swabbed over the conjunctiva with boric acid irrigations at home.

The conjunctivitis caused by the staphylococcus usually follows traumas or is associated with a blepharitis marginalis. The treatment of staphylococcus conjunctivitis is with mercurials, such as yellow oxide of mercury, ammoniated mercury, or bichlorid ointments with a mild collarium, such as zinc sulphate, to be used at home.

There is a chronic type of conjunctivitis that is usually due to the Morax-Axenfeld diplobacillus. Most of these cases can be diagnosed by the history and clinical findings. For example: The patient states that the eyes have given him trouble with a sensation of burning, itching and pressure in the eyes. This is ameliorated when out of doors but aggravated in a dusty or smoky atmosphere. In the morning the eyes are hard to open, there is some secretion in the canthi, and sometimes the lids are glued together in the morning. There are usually excoriations or fissures at the external canthi. This condition is frequently called angular conjunctivitis. The lid margins also are usually red and in cases of long standing there may be a resulting ectropion. The secretion is a gray-yellow.

The treatment of these cases is zinc sulphate,

a grain to the ounce, and if the angles and the lid margins are also involved treat those with a 2 to 5 per cent. solution of silver nitrate. An ointment of zinc is applied to the lid margins at night. The zinc sulphate solution must be continued for at least six weeks as the disease is very obstinate.

The textbooks all mention diphtheritic conjunctivitis but personally I do not believe that it exists. I have seen a number of membranous conjunctivitis some of which apparently produced a pure culture of a diphtheroid organism but upon animal inoculation they proved to be nonpathogenic. The fact that diphtheria antitoxin immediately improves the condition has no bearing on the case, as horse serum improves most of the acute inflammatory conditions of the conjunctiva.

Gonorrheal conjunctivitis is perhaps the most severe. Twenty-four hours after the onset the eyes are usually swollen shut and associated with a copious purulent discharge. Without treatment the cornea frequently becomes involved early and an almost hopeless situation develops. All cases of gonorrheal conjunctivitis should be hospitalized and the eyes irrigated every fifteen minutes followed by 10 per cent. argyrol until the swelling and discharge begin to subside. The irrigations must be thorough, as cleanliness is the most important point of the whole treatment. In severe cases one should also give milk injections subcutaneously on the first, second, fourth and sixth days. With this treatment, instituted early, no eyes should be lost from a gonorrheal conjunctivitis.

There is a type of conjunctivitis that occurs in the summer and seems to be contracted from swimming pools. I have never been able to isolate any organism from these cases. They are frequently quite severe, even causing swelling of the preauricular gland. I give these cases zinc sulphate and treat the conjunctivitis with either silver nitrate 1 per cent. solution, or bichlorid of mercury 1:500 solution, depending on the susceptibility of the patient.

One must not fail to mention that numerous cases of saprophitic infections have been reported but they are so rare and so difficult to diagnose accurately that it is not necessary to go into details. However, one must not fail to mention Parinaud's conjunctivitis. In this type of infection there are no organisms present in the secretions but a leptothrix is present in the conjunctival and subconjunctival tissues. The lesion has the appearance of a vegetation in the conjunctiva covered with minute yellowish dots or streaks. There is also swelling

and tenderness of the preauricular gland of that side. This swelling is frequently so marked as to be mistaken for mumps. In the early stages there is a slight rise of temperature. Large doses of iodids internally are apparently the treatment of choice.

Trachoma being such a large subject of itself, I will merely mention a few of my personal views and observations on the subject. In the first place it has been classified as a highly infectious disease. I do not agree with that point of view. One has only to study a large number of cases with that point in mind to make one highly skeptical. It is not uncommon to see patients with trachoma in only one eye, or see a single member in a family living under very unsanitary conditions. If it were so highly infectious, why the discrepancy in those cases. Most trachomas are worse in the summer months. A great number of those having their repeated recurrent attacks in the summer, are found hypersensitive to many of the seasonal pollens prevalent at the time of their recurrence. I have seen several of the monocular trachomas in whom diseased accessory sinuses were found only on the side of the affected eye, and some of these cases cleared up after the diseased sinuses were drained. Other cases are cured by pushing the antiluetic treatment, especially with mercury (Meyer Wiener). Again a number of cases have been cured by the tubercular treatment (Budapest Clinic). With all those observations in mind, I can't help but feel that trachoma is merely a local manifestation of systematic disturbances, such as deficiency diseases, disturbed internal secretions, allergies to pollens and foods, syphilis, tuberculosis, diseased accessory sinuses or other focal infection, with frequently a superimposed pathogenic infection.

It is impossible to discuss the subject of conjunctivitis without also making mention of the other common causes of an acute inflammation of the eye, especially those affecting the cornea, the uveal tract and acute glaucoma.

Diseases or foreign bodies of the cornea can readily be eliminated by good focal illumination and a loupe, and a study should be made of the surface of the cornea for foreign bodies or ulcers as well as for observing the transparency of this membrane.

Having thus eliminated the possibility of any disease of the cornea we have left diseases of the uveal tract and acute glaucoma. To facilitate the differential diagnosis between conjunctivitis and the latter two I have prepared the following table of comparisons between conjunctivitis, uveitis, and glaucoma.

EPIDEMIC MENINGITIS

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The year 1912 brought one of the most serious epidemics of meningitis in the history of this country, serious in number, complications, and mortality.

The writer was able through his active contact with this epidemic to amass a large amount of valuable information on this dreaded disease and the different problems of treatment; he was able to institute and constructively to follow through measures for its control; measures concerned with the control on a large scale of carriers of meningococcus, and instituted experimental and clinical studies to establish the value of prophylactic vaccination.

Since that time this country has been free from any extensive epidemic, although a considerable number of cases occurred during the war, especially during the years 1917 and 1918.

This year again brings a considerable number of cases; again the periodic cycle, so tragically seen in this disease, beginning with its first period of appearance from 1805 to 1830, to a second period from 1837 to 1850, a third from 1854 to 1875, and a fourth from 1876 to 1913. The year 1928 brings the first considerable number of cases since 1918.

The lack of contact of many physicians during the long quiescent periods necessarily results in unfamiliarity with some of the extensive work which has been done on this disease.

The writer is impelled again to stress at this time some of the more important aspects of these studies, which he obtained through the hard path of experience with epidemics of meningitis since 1907 in New York City, the Texas epidemic of 1912 and the Missouri epidemic of 1918.

Isolated small epidemics of meningitis have been caused by the *Streptococcus mucosus capsulatus*, a very rapid fatal disease, but the true epidemic form of meningitis is a specific infectious contagious disease produced by the meningococcus. The most important predisposing etiologic factor is probably unusual climatic changes to which people are unaccustomed and nonresistant, which occasions general nasal catarrh. This was true in the epidemic of 1912 and during the "flu" epidemic of 1918 and is the condition now.

The disease occurs at all ages and in most epidemics children up to fifteen years of age

have been the greatest sufferers, although striking differences as to age incidence in different epidemics have occurred with adults at times being most susceptible.

There is no striking difference in the number of cases that have occurred in the two sexes, and whites and negroes are varyingly susceptible. In the New Orleans epidemic of 1850 and in Memphis, 1862, in Mississippi, 1862, and Maryland, 1864, in 1865 in Mobile, 1867 in Philadelphia, and in 1873 in South Carolina the disease was confined principally to negroes, but in the Texas epidemic of 1912 sixteen hundred cases were among whites and five hundred and thirty-five among negroes.

In the eastern hemisphere meningitis has extended from Russia to Sweden 63° north, to Jerusalem, Persia and Algiers 30° north. Thus it has been confined to temperate and subtropical latitudes. To some extent it has penetrated the cold zone, a small epidemic having been reported during the winter months in Dawson, Alaska. The tropics and practically all of the southern hemisphere have escaped the disease altogether. Nearly all the epidemics prevail in the winter and spring months. In the last Texas and Southwestern epidemic the disease appeared in the latter part of October and was at its height during the months of January, February and March; it began to die out rapidly in April and was almost gone by the middle of May.

Low temperature by itself, however, is not the most important predisposing agency, as seen by the fact that a number of epidemics have occurred in mild winters while others have begun or have grown worse with the onset of warmer weather.

Overcrowding has been definitely established as a factor in spreading the disease and was so recognized in the armies of Germany as early as 1839; later it was considered as the only discoverable cause by the French army surgeons and likewise among our own surgeons with the federal troops in 1862.

In cities, the disease has been most prevalent among the poor who live in crowded dwellings and unhygienic surroundings. In New York City in 1904, 76 per cent. of the patients were among this class and in the 1912 Southwestern epidemic a similar situation existed. Multiple cases, however, are not as common as would be expected, indicating the high natural resistance against the disease. In the Texas epidemic of 2135 cases, two cases each appeared in a hundred and three houses, three in twenty-three houses, four in seven houses, and five in two houses. Most physicians and

nurses have escaped the disease; in the New York City epidemic in 1911 two physicians were taken, but in Dallas two physicians and twelve nurses were stricken. Dwelling infection is of negligible importance.

The active exciting cause of epidemic meningitis is the meningococcus. This organism is Gram-negative, usually biscuit shaped, hemispherical with flat surfaces closely approximated; the size varies considerably; the organisms usually occur in pairs, sometimes in tetrads and small clumps, and accidental chain formation may be seen. Degeneration forms due to autolysis are seen in older cultures. The morphology of the meningococcus of the cerebrospinal fluid in the early stages of the disease corresponds to that seen in young cultures. In chronic cases, especially those treated with serum, the organisms are frequently clumped and many degeneration forms are seen.

The meningococcus has characteristic cultural properties. It is very viable and is often very difficult to cultivate, unless exudates are inoculated within a few hours after removal. Old cultures grow luxuriantly and are more resistant. The organism tends to die and disintegrate quickly, principally because of an intracellular enzyme. The organism is pathogenic for laboratory animals and meningitis can be experimentally produced in the monkey by the injection of live cultures into the subarachnoid space.

The meningococcus gives specific serological reaction by agglutination, absorption tests, opsonic index, complement fixation, precipitin tests and animal inoculation tests.

The other Gram-negative group of cocci, the pseudomeningococcus, the gonococcus, the *Micrococcus catarrhalis*, the *Micrococcus pharyngis siccus*, the *Diplococcus mucosus*, the chromogenic Gram-negative cocci, and the parameningococcus, have definite specific cultural and serological reactions.

It is accepted that the nose and the throat are the portals of entry of the meningococcus, and that nasopharyngitis predisposes to infection. Many consider that every case of meningitis is first a case of meningococcus pharyngitis and this has been proven in many instances. Meningococcus tonsillitis has also been described.

Invasion by the meningococcus from the nose and throat is believed to be affected in one of two ways—by the primary inva-

sion of the blood stream causing a meningococcus septicemia with secondary localization in the meninges, or by direct infection from the nose through the lymphatics.

It was at first suggested that the meningococcus reached the meninges by direct extension upward, through the cribriform plate of the ethmoid; later it was suggested that the course was through the sphenoid, it being shown in a study of thirty-nine cases that only two had inflammation of the ethmoid cells while 34 per cent. had inflammation of the sphenoidal sinus. It was suggested that after the sinus became infected the suppuration might readily extend through the thin lamina of bone over it. The localization of the exudate at the base in the region of the hypophysis was considered significant, but similar localization has been found in secondary meningitis as from the ear and in tuberculous meningitis, and a like localization occurs in experimental meningitis in the monkey.

Most of the evidence points to the primary blood infection as the probable channel. The clinical and laboratory evidence to be discussed later is entirely confirmatory.

Meningitis is disseminated through the medium of healthy carriers.

In the 1905 epidemic in New York City, of 2,180 cases studied only 6 per cent. gave history of direct exposure to the disease.

The meningococcus is found in the nose and throat of those ill with the disease and in over 90 per cent. at some stage of the disease, usually disappearing in from five to fourteen days.

The examination of the nose and throat of contacts shows positive cultures for meningococcus in as high as 80 per cent. of contacts and of those living in the vicinity of the disease, and figures establish the fact that the proportion of healthy carriers in an infected community bears a definite ratio to the number of cases ill with the disease. The total number of healthy carriers is therefore very large and estimated to be as large as thirty times the actual number of sick. The cocci usually disappear from the nasal pharynx in a few days but may stay much longer.

It is apparent, therefore, that a meningitis epidemic is produced essentially, not by those affected with the disease, but by the healthy carriers who distribute the organisms over large areas, exposing a great many persons, only a very small percentage actually becomes infected. One healthy carrier may in turn cause a number of other

healthy carriers thereby producing a vicious cycle of constantly increasing cases over widely scattered districts. It is easy to see how dangerous a meningitis epidemic is, and how difficult it is to control. It is an epidemic where one must deal with the healthy. These healthy carriers can satisfactorily explain the course of an epidemic; the occurrence of the diseases where there is no direct history of exposure, the spread of it to widely distant areas, many miles away from the infected regions can be so explained. In the 1921 Texas epidemic, most of the cases at first appeared in the larger cities, Dallas, Fort Worth, Waco, and Houston. As more cases developed in these cities, more cases began to crop up in small country towns in which there had never been any meningitis before and in which there was no history of direct exposure to other cases. In this way town after town became infected, small towns and large towns. In some there were but few cases, in others more.

A good illustration of carrier transmission is the following: An intern in one of the New York hospitals developed meningitis. There had been no case of meningitis in the hospitals for over a year and he had not seen any outside of the hospital in months. At the time that he became ill, a large epidemic of meningitis was raging in Greece, a number of cases developing among the Greek immigrants on their voyage across the ocean. All Greek immigrants were therefore looked upon with suspicion as being possible carriers. We immediately thought of a Greek immigrant who had been admitted to the hospital some four or five days before the intern became infected. This immigrant was suffering from some slight condition, not meningitis. Cultures from his nose and throat proved him to be a meningococcus carrier.

702 Argyle Building.

(To be continued in next issue)

OBSERVATIONS ON THE NASAL SINUS PROBLEM*

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This paper is presented with the view of impressing upon physicians in general practice the importance of the nasal sinus problem. I have prepared neither a stereotyped discussion of sinus disease nor a technical discussion of the operative nasal surgery. As my experience



Fig. 1. Showing normal sinuses of Case 1. Patient had been advised to have a radical operation on all sinuses.

with sinusitis has increased I have been impressed with two outstanding facts, (1) failure of the general practitioner to diagnose nasal sinus disease, and (2) the failure of the rhinologist to cure this disease. The subject matter of this paper will be limited to purulent sinusitis, both acute and chronic.

Let us consider the question of diagnosis. I have been amazed at the number of cases of sinusitis coming to me undiagnosed, some of them having been in the hands of physicians for years with definite symptoms of nasal sinus trouble.

In the acute cases we find a history of a cold in the head or influenza. The patients complain of neuralgia in the face, on either one or both sides, and a yellow discharge from the nose. Every head cold is a potential sinus infection, and every head cold which is not cured in ten days and which gives rise to a yellow nasal discharge and pain in the face (forehead, eye, cheek, teeth) exhibits a definite sinus complication. Often we find these patients consulting a dentist for pain in the teeth.

The acute cases of sinusitis demand surgical intervention in rare instances only. A great majority of such cases will respond to conservative treatment to the point of complete cure. If neglected they result in chronic purulent sinusitis.

The chronic cases are more difficult to diagnose, but they all present one symptom,—nasal discharge. This discharge may be copious or scant; it may come forward and be blown from the nose; or it may drop backward into the postnasal space. Usually by careful history taking one can elicit previous acute attacks.

* Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.



Fig. 2. Frontal sinuses of Case 2. Contrast between the two frontal is very evident. The darker frontal is the diseased one. It is the left as the slide was reversed in making the negatives.

Also, there is associated with the discharge some degree of pain in the sinus areas and frequently systemic symptoms of a focal infection.

Let us now consider the question of cure of sinus disease. The acute cases often do not reach the rhinologist. The treatment is non-operative in most cases and consists in establishing drainage and ventilation of the sinuses. This is accomplished by tamponing, shrinking of nasal mucosa, and by suction in the hands of some.

The chronic cases present the gravest problem. So many times I hear the layman say,

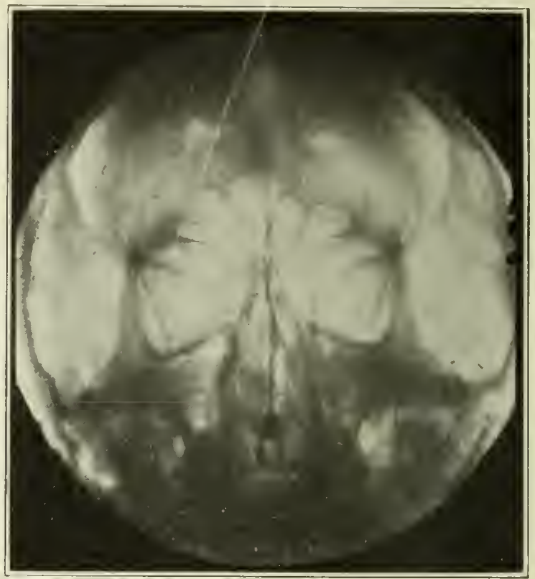


Fig. 4. Cloudy left antrum of Case 3.

"What is the use of an operation; everyone I know who has had a nasal operation is no better than before." This attitude is quite general and even many physicians have the same opinion. Can one censure them? No! In my opinion the fault lies with us as rhinologists and our failure is due to one or more of three things, viz., (1) incorrect diagnosis, (2) faulty surgical technique, (3) failure to carry out correct postoperative treatment.

To establish a diagnosis for surgical purposes an X-ray of the sinuses should be made. The surgical technic will vary with each operator, but I have found that radical opera-



Fig. 3.

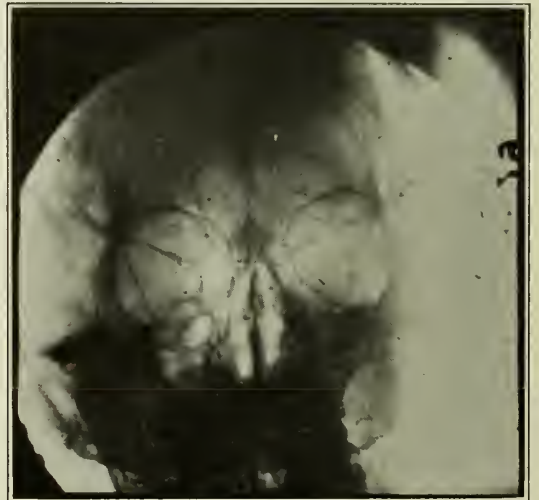


Fig. 5. Very decided clouding of left antrum. Had been treated three years without a diagnosis of sinus disease. (Case 6.)



Fig. 6. An opaque left antrum. Treated three years and no diagnosis of sinus disease. Was losing hearing. (Case 7.)

tions on the nasal sinuses are seldom necessary. A conservative operation with proper postoperative treatment will effect a cure in the majority of cases.

The postoperative treatment is most important. Therein lies the cause of many of our failures in nasal surgery. The surgeon will often open the involved sinus, do a few dressings or irrigations and discharge his patient. He is not willing to undertake a painstaking, time consuming series of postoperative treatments. He has relieved his patient's pain and toxemia, but he has not cured the purulent dis-



Fig. 7. Cloudy right antrum of Case 8. Note clouding is not uniform. Picture made immediately following air inflation of the antrum and demonstrates solid rather than liquid obstruction in the antrum. A Caldwell-Luc was done and the sinus found to contain much granulation tissue.

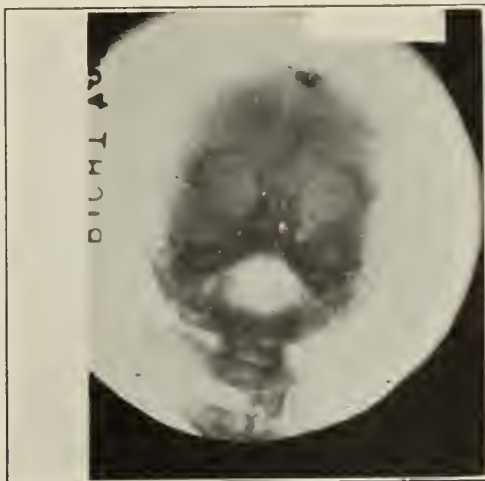


Fig. 8. Case 9 showing osteomyelitis of right superior maxilla. Note inferior external angle of orbital margin is obliterated. Note absence of sinus development.

charge and the patient is later dissatisfied and spreads the story that he still has a disagreeable nasal discharge and is no better than before.

I have proven to my own satisfaction that this discharge can be stopped and a complete cure of the sinus trouble effected. One of the essentials is the proper postoperative treatment.

To better illustrate my ideas, I have added a series of case histories with lantern slides of the X-ray diagnoses:

REPORT OF CASES

Case 1. Here we have a normal set of sinuses. This patient was a student at Kansas University at the time he consulted me. A diagnosis of pansinusitis had been made and a radical operation on all sinuses had been recommended. Is it any wonder we fall into disrepute? Nothing was done for



Fig. 9. Note clouding of all sinuses of right side (frontal, ethmoid, maxillary). (Case 10.)

this patient except advise him as to the normal condition of all sinuses. He is now living at Longview, Washington, and is well. He consulted me during the Christmas holiday season in 1927 and at that time I had an opportunity to recheck the condition of his sinuses.

Case 2. Acute left frontal sinus infection. This is one of the few acute cases requiring operation. An external operation was done on August 8, 1922. The patient was rechecked in June, 1927. There had been no recurrence and no discharge subsequent to his operation. I saw this patient again in March, 1928, for ammonia burn of the eyes and again checked the condition of his sinus.

Case 3. This shows a left antrum infection. The patient complained of recurrent colds, pain over the left side of the face and in the teeth, a nasal discharge and frequent attacks of sneezing. I made a diagnosis of chronic sinusitis in 1925. Patient left me and took ultraviolet treatments for approximately one year, then returned and I did an intranasal drainage of the left antrum in November, 1926, followed by irrigation until the washings were clear. Patient is well at the present time.

Case 4. This patient complained of difficulty in breathing in the left side of the nose, some pain and tenderness over the left side of the face at infrequent intervals. The principal complaint was severe sneezing attacks with a watery discharge from the nose. The sneezing attacks were so severe that she miscarried. Her obstetrician advised that she could not carry a child to term unless the sneezing attacks were controlled. She took ultraviolet light treatments for eight months with slight improvement. Diagnosis was deviation of septum to left with left antrum infection. Operation, March 27, 1926, submucous and intranasal antrum—with complete relief.

Case 5. This case illustrates the failure to clear up sinus infection after operation. The patient had been operated on two years previously, a bilateral intranasal antrum drainage. I washed out the antra through the original antrotomy openings and found both antra filled with pus. In addition, this patient had a bilateral sphenoid and bilateral ethmoid. She was reoperated on with complete relief.

Case 6. This case was a left antrum infection. The principal complaint of this patient was arthritis with acne. She was a school teacher and her arthritis was so severe that she could with difficulty go to and from school. She had been treated two years previously at Iowa City, Iowa; also had been treated in Kansas City. No diagnosis of sinus trouble had ever been made. An intranasal antrotomy gave her complete relief. In March, 1928, she took influenza which was followed by re-infection of the antrum. A few irrigations through the antrotomy opening made in 1926 effected a cure.

Case 7. Chief complaint was a sense of intense fullness in the ears with impaired hearing. Had recurrent attacks of neuralgia over left side of face with backache, chills and fever. Had been treated three years. No diagnosis of sinus disease. X-ray showed cloudy left antrum. Intranasal antrotomy relieved her condition.

Case 8. This is a case of right antrum infection operated upon on Jan. 19, 1926. Persistent treatment until Feb. 2, 1927, when Caldwell-Luc operation was done. The antrum was found to be filled with polypi. Complete relief followed the Caldwell-Luc operation.

Case 9. This case was a baby two weeks old in which there was an osteomyelitis of the right superior maxilla. This infection followed probing

of the lacrimal sac. The question involved was whether or not an infection of the right antrum had taken place. The slide shows osteomyelitis which cleared up under prolonged treatment with chlorin solution.

Case 10. This was an infection of the right frontal, ethmoid and antrum. The patient was operated upon on the 18th of February, 1927. An intranasal of the ethmoid and antrum was done and an external frontal operation, with complete relief.

By reviewing these cases, which are typical of various types of sinus infection, we find that if classified in accordance with the patient's complaint they fall in two main groups:

Group 1. Those presenting local symptoms and signs, such as nasal or postnasal discharge and varying forms of facial neuralgia or headache, impaired hearing (due either to middle ear involvement via the eustachian tube or to toxic neuritis of the eighth nerve). I will add also to this group those cases having the hyperesthetic rhinitis syndrome as exemplified by Case 4 listed above.

Group 2. Those exhibiting signs and symptoms of a focal infection, arthritis being the most common in my practice.

I may summarize the treatment briefly as follows: Treat the acute cases conservatively, operating only in the urgent cases. For the chronics, operation is the only cure. It should be undertaken only when the clinical diagnosis has been verified by X-ray and the post-operative treatment should continue until the discharge has been eliminated.

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DISCUSSION

DR. M. B. SIMPSON, Kansas City: I think the type of sinus infections today that need most attention are the acute cases. If we would deal with the acute cases in a more serious manner we wouldn't have the chronic cases to contend with. All head colds I believe are really sinus cases and we should treat them as sick people.

My method of treating these patients is to order them to bed, apply local shrinking treatment to the mucous membrane of the nose and external heat. I usually have them get an electric pad where it is possible and bake their heads continuously.

Dr. Connell told us about the long after treatment in his operative cases. We all know that there is much after treatment in sinus cases. I have found that if we give the patient correct prognosis and advise them before we operate about the long after treatment, we can handle them much easier.

The X-ray is indeed a great aid in making a prognosis. When we have a simple antrum infection the prognosis for an early recovery is much better than if the ethmoids and sphenoids are complicated with the antrum infection.

As Dr. Connell said, the pendulum is swinging back to more conservative operative treatment. Dr. Skillern, who is one of our great authorities on sinus infections, in a recent article advised the use of colloidal silver for chronic ethmoid infection. When we find a man the type of Skillern getting away from radical operations we can see we have really been too radical in our surgical procedure.

THROMBOSIS OF THE VENOUS SYSTEM

LATE PHYSICAL EFFECTS AND SYMPTOMATOLOGY WITH SPECIAL REFERENCE TO THE LOWER EXTREMITIES*

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ST. LOUIS

Thrombophlebitis or, more properly, thrombosis of the venous system, is of unusual interest to the general medical profession as well as to its specialties, because of the large number and varieties of diseases which it follows. The obstetrician, gynecologist, surgeon, internist, ear, nose and throat specialist, as well as the general practitioner, and all other branches of medicine to a greater or less degree, sooner or later will meet with this condition.

This paper however is chiefly concerned with venous thrombosis as it affects the lower extremities. It was Virchow who first called the attention of the medical profession to this condition and since that time a vast amount of work has been done concerning it. Few, if any, definite conclusions have been arrived at since that time. What are the factors concerned in the production of venous thrombosis? It is the general opinion that they fall under two heads, primary and contributory. Under primary are generally considered trauma and infection, and under contributory, slowing of the blood stream, chemical and physical changes in the blood and anatomical relations of the blood vessels. With venous thrombosis it is probably a combination of several of these factors which produces the condition and later it will be shown that in some cases infection undoubtedly plays a major role, while in others trauma is probably of considerable importance, although of less importance than is generally conceded.

The formation of the thrombus itself has been studied extensively and it is practically agreed that it first consists of an accumulation of blood platelets followed in a few minutes by leukocytes and fibrin. The cause of the endothelial injury which produces this accumulation of blood platelets, leukocytes and fibrin is still in the experimental and theoretical stage and upon its solution depends the solving of this condition, which indirectly results in many deaths each year, increases the hospital stay on an average of fifteen days and quite often results in permanent impairment of function of the affected extremity. Evidence of thrombus formation and vessel occlusion usually occurs in the latter part of the second or in the third postoperative weeks. Whereas, in the normal

case the temperature reaches normal within from six to ten days, this is not true in cases of thrombus formation. There is usually a low grade persistent fever which continues up to the time of definite symptomatology and physical findings. The patient first complains of pain of the affected extremity, followed by swelling, the extent of which depends upon whether it is the popliteal, saphenous, femoral or other vein or group of veins that is involved. The skin temperature is elevated, the limb may become slightly cyanotic and there is a further rise of the general body temperature.

TREATMENT OF ACUTE CONDITION

The treatment is conservative with elevation of the affected extremity, the application of ice bags, and morphia for pain if necessary. Massage is strictly contraindicated as it may dislodge portions of the thrombus or the thrombus itself causing embolism or infarction. It is pulmonary embolism which usually produces death in these cases, although the emboli may lodge in any portion of the circulatory system. Turenne has advocated the ligation, or ligation and extirpation of thrombosed veins of the pelvis in selected cases. It has not found much favor in this country.

Some French observers have compared the blood coagulation time in twenty-five people before and after operation. They noted no gross changes in those in which thrombosis developed as compared to those in which there was no thrombosis. Anesthesia played no part, neither did the question of major or minor surgery. They concluded that postoperative thrombosis does not appear to be dependent upon the blood coagulation time; evidently other factors share in its mechanism.

ETIOLOGY

Hegler has noted an increasing frequency of thrombosis and embolism during and since the war in Germany, the increase amounting to 600 per cent. since 1913 in practically the same number of hospital admissions. He is of the opinion that underfeeding has produced a weakness of the vascular endothelium and has caused an increased decay of cells, thus increasing protein decomposition so that globulin and fibrinogen become augmented, that being a supposition for a facilitated formation of thrombi. He cites a very interesting case in which a mother who had had a thrombus condition of the lower extremities on two different occasions, had three daughters who were likewise prone to thrombus formation. The first daughter at the age of 17 developed a thrombosis of the left leg and died three weeks later of embolism of the pulmonary artery. The second

* Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

daughter developed a thrombosis of the left femoral vein at the age of 22, one of the right femoral vein at 26, and a year later of both legs, during pregnancy. The third daughter developed a thrombus of the left leg at 14, of the left and right legs at 20, following abortion, and died of embolism of the pulmonary artery. These cases may be mere coincidences but they may also demonstrate an inherited tendency to weakness of the vascular endothelium. He concludes that there remains nothing else than to assume that besides a hereditary constitutional weakness of the endothelium, which may be extrinsically recognized as a constitutional type, the action of still unknown factors accumulate, thus facilitating the occurrence of thrombosis; caused partly through infection, partly trauma and partly through a change in blood proteins.

Plummer has noted that in cases of severe cardiac decompensation coincident to hyperfunctioning thyroids thrombosis and embolism practically never occur. Shionoya and Rowntree with the use of the extracorporeal vascular loop, in rabbits, showed that whereas thrombosis occurred normally in from four to ten minutes it only occurred in from twenty-five to thirty minutes when one milligram of thyroxin was administered daily for three days to each rabbit. The change was sustained for three days.

Walters has observed a steady fall of blood pressure, both systolic and diastolic, postoperative, this drop averaging four millimeters of mercury per day with an average total drop of 30 mms. of mercury. Associated with this is a sluggishness of the function of the organs, with decreased peristalsis and movements of the diaphragm which follow all abdominal operations. This decreases the normal to and fro respiratory movement on the viscera and blood vessels producing a slowing of the circulation. Acting upon the theory that slowing of the circulation is a factor in thrombus formation, he has given each postoperative case two grains of dessicated thyroid as soon as the stomach would tolerate it, and has also urged them to move about in bed to a limited degree unless otherwise contraindicated. He states that in over two thousand cases he has not had a single death from pulmonary embolism. He does not state the incidence of venous thrombosis however. He concludes that there are factors other than slowing of the rate of metabolism, lowering of blood pressure and possible retardation of the circulation that are responsible for the formation of thrombi and emboli, else the incidence of postoperative embolism would be much higher. He thinks however that they set the stage. Whether infec-

tion, changes in blood fibrin or unknown changes in the blood or tissues, are the factors is as yet undetermined.

The question of anatomical difference to account for the preponderance of affections of left lower extremity as compared to that of the right is still a matter of debate. Some think that the fact that the right common iliac artery crosses the left common iliac veins, thus producing a slight obstruction, will account for the preponderance, but it is the opinion of others that there is nothing in the anatomy to solve this problem nor in the habits of the two limbs that will offer marked contrast in their uses.

PROGNOSIS

But what of the future of the patient who has had thrombosis of the venous system? Is there a complete absorption of the thrombus in every case, is a perfect collateral circulation established, or are there persistent physical findings and symptomatology?

During the past four years there has been under my observation a series of twenty-two cases all of which had the initial condition at least ten years ago and all still have definite physical findings and symptomatology referable to the affected part or parts. All these cases are in men, no women are included. It has been possible to secure the records of each case and determine the cause of the condition as well as which extremity or extremities were affected.

Ten of these cases followed influenza or influenza pneumonia, two measles, one diphtheria, one erysipelas, one mastoid operation, one nephrectomy, one right inguinal hernia, one clean appendix, one ruptured appendix, one gallbladder, one gunshot wound of the lower third of the left thigh and one in which no definite history of either trauma or infection could be obtained. In seventeen of these cases there was an affection of the left thigh and left leg, in two cases of the left leg alone, in two cases of the right thigh and leg and in one case of the right leg alone. The swelling averaged from $\frac{1}{2}$ inch to $2\frac{1}{2}$ inches in circumference. Care was taken to measure the comparative circumference at the same distance from the knee or ankle in order to get exact measurements. Measurements were taken at approximately the same time each day in all cases, which was usually in the midafternoon and after the men had been sitting during the morning. Five of these cases had marked enlargement of the veins of the left lower abdomen due to involvement of the superficial epigastric vein.

It is interesting to study these cases in the

light of our present theories. Fifteen of these cases followed diseases proved or thought to be due to infectious organisms. There was no demonstrable trauma involved. Three followed clean operations all on the right side of the body, but all of these developed swelling of the left lower extremity. Two followed pus conditions on the right side of the body and later developed thrombus formations, one of the right, the other of the left lower extremity. In one case, that of gunshot wound, it was apparently of true traumatic origin, if the infection usually accompanying a gunshot wound can be excluded. In the last case no history of trauma or infection could be obtained. This man stated that he noted a gradual swelling of the left lower extremity following a rather long walk. The question of a low grade infection that was not noted by the man himself must be considered in this case.

SYMPTOMS

The chief symptoms complained of were, swelling of the affected extremity, especially after long standing and long walking, a feeling of heaviness of the extremity at that time, soreness and aching of the muscles especially during cold and damp weather and during weather changes, and of coldness of the affected foot. During the four years that they have been under observation there has been no gross change in the physical findings. The swelling has been approximately the same and there does not appear to be any considerable improvement or aggravation noted. The swelling is uniform and is somewhat harder than is the normal tissue. There is no pitting on pressure. There was no tendency to ulcer formation except in one case. The skin temperature was perhaps slightly below normal. The one symptom which apparently increases as the patient grows older is that of muscle soreness. There evidently are muscle changes taking place due to impaired circulation.

In only eight cases was there evidence of superficial venous enlargement of the thighs or legs and five of these had been operated for varicose veins, all of which were either unimproved or the condition was aggravated. The operators probably did not understand the underlying pathology with affection of the deep venous circulation or they would not have subjected these men to operation. One man had worn a truss for many years because of supposed hernia. Examination showed it to be an enlarged vein at the fossa ovalis which simulated very closely a hernia formation.

TREATMENT OF CHRONIC CONDITION

Treatment consisted of elastic stockings to

support the circulation and decrease the swelling, and of heat and light treatments. Salicylates were used when extreme soreness was complained of. Many of the men refused to wear the elastic stockings stating that they secured no benefit from them, in fact the thigh or leg was apparently somewhat more sore after wearing the stocking. Diathermy and deep penetration heat followed by light massage gave temporary relief. Many of these men who have followed a trade in which there were long hours of standing or walking have been forced to find new positions in which they are able to sit most of the day, due to their condition. The same difficulty is met with in the housewife who has suffered the same condition and is forced to be on her feet practically all day.

The condition of venous thrombosis, therefore, is important, not alone for its immediate dangers, but for its late permanent disabling effects.

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SIMPLE TESTS IN THE STUDY OF KIDNEY DISEASES*

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In the study of Bright's disease many and varied tests have been suggested and tried. Most of them have been found impractical or of little value and are therefore seldom used. No one test will give the desired information in regard to the part of the kidney that is damaged and the severity of the damage; for such information it is necessary that more than one test be employed.

To interpret the results of kidney function tests a fair understanding of the anatomy and physiology of the organ is necessary. The kidney is made of many units. Each unit consists of a tuft of blood vessels, the glomerulus, which hangs into a space formed by the dilated upper end of the kidney tubule. The space is known as Bowman's space and its limiting membrane the capsule of Bowman. The kidney tubule proceeds from its dilated upper end in first a convoluted portion (the proximal convolution), then into a straight descending limb, a loop and ascending limb (the descending limb, the loop and ascending limb of Henle), then another convoluted portion (the distal convolution) which terminates in a straight collecting tubule that joins with the collecting tubules of other kidney units to empty at the tip of the pyramid.

* Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

The epithelial cells of the convoluted tubules differ from those of the collecting tubules and of the limbs and loop of Henle. It is the epithelium of the convoluted tubules that is affected in tubular nephritis or in nephrosis.

The renal artery divides into a number of branches after entering the kidney, these passing through the medulla of the kidney to the region of the inner margin of the cortex. Here they describe arcs, the arcuate artery, from whose convex side branches are given which run toward the periphery of the cortex. From these vessels small branches are given off which terminate in the vessels known as the glomeruli. The glomerulus does not consist of one vessel arranged in a spiral form as is commonly stated. The vessel which enters the glomerulus, the afferent artery, divides into four or five branches; each of these subdivides, the smaller branches describing loops. These small capillaries reassemble to form the efferent artery. It is an important fact that the efferent artery is of smaller diameter than the afferent. The afferent and efferent arteries are supplied with nerves but there is considerable question as to whether or not there are nerves to the vessels of the glomerular tuft. The efferent vessel after leaving the glomerulus breaks into capillaries which supply the convoluted tubules.

Bowman, in 1842, described the anatomy of the glomeruli and from their position considered them filters separating water from the blood. He considered the tubules were concerned in the secretion of urea and other crystalloids.

Ludwig considered the excretion of urine due to physical forces, that the fluids and the crystalloids were filtered from the blood by the glomerulus and that the dilute urine was concentrated by the diffusion of water into the cells of the tubules.

These theories were attacked by Heidenhain. He considered the production of urine to be a result of the secretory activity of the cells; the epithelium covering the glomerular tuft secreting water and salts, and the epithelium of the convoluted tubules and the ascending limb of Henle the urea, uric acid, etc.

The Cushman modern theory accepts the filtration and reabsorption of Ludwig and supplements the secretory idea of Heidenhain.

Richards and his co-workers by the use of apparatus have been able to perfuse the living kidney with a constant flow, irrespective of the state of the vessels. They have also been able to penetrate Bowman's capsule with a very fine capillary pipette and collect the urine as it filtered through the glomerular vessels. They have shown that alterations in the glomerular pressure were responsible for the

rate of glomerular filtration (the best argument that filtration through the glomeruli is a physical and not a vital phenomenon), that the glomerular filtrate was free from protein but contained chlorids and sugar and was of lower specific gravity than the bladder urine which was free of sugar. The latter fact argues for the absorption of fluids and certain crystalloids in the tubules. By direct observation of the glomerulus these investigators have shown that the rate of flow and the pressure in the glomerulus was regulated by the size of the efferent vessel. They have also shown that all glomeruli are not active at the same time; under certain experimental conditions 95 to 100 per cent. were active, under others 5 to 40 per cent. The number of units in the kidney is usually estimated at four or five million.

To recapitulate, the kidney is made of a number of units, each unit composed of a glomerulus and its uriniferous tubule. The blood supply to the tubules first passes through the glomerulus, therefore when a glomerulus is obstructed or destroyed its tubule's blood supply likewise is obstructed or destroyed. Because of the peculiar construction of the glomerulus, part of the glomerulus may be destroyed without destruction of the whole. The glomerulus acts as a filter through which water and crystalloids in solution are filtered. Water and certain crystalloids, as sugar and sodium chlorid required by the body, are reabsorbed in the tubules. It has been shown that certain dyes, such as phenolsulphonephthalein, are excreted through the glomerulus.

Renal function tests should include tests to show renal damage, the part and extent of the damage and the probable prognosis. We believe these conditions are answered by urinalysis (the urine to be tested for specific gravity, albumin and a microscopical examination of the sediment), the Mosenthal test, phenolsulphonephthalein test, and the nonprotein nitrogen of the blood. Time prevents a description of the technic of these tests. It can be found in any recent book of laboratory methods.

In pure glomerular nephritis the urine may show albumin in small quantities—in acute glomerular nephritis the albumin may be greater and be accompanied by gross or microscopic blood. In chronic glomerular nephritis many glomeruli of the four or five million are destroyed or replaced by fibrous tissue. If the glomerulus is destroyed its tubule receives no blood supply and degenerates, to be replaced by fibrous tissue. In such instances the urine is usually of low specific gravity, has only a small amount of albumin and few or no casts, usually hyaline. In tubular nephritis or in

nephrosis the urine contains more albumin and there are granular or other casts in the sediment.

The phenolsulphonephthalein test depends on the estimation of the per cent. of the injected dye recovered in the urine within a given time, usually two hours. The dye is excreted by the glomeruli, therefore diminished excretion means diminished glomerular function; however, there are other factors to be considered in estimating the importance of the test in each patient, such as the absorption of the dye, the question of poor circulation, edema, incomplete emptying of the bladder, etc.

The Mosenthal test in our opinion is of greatest value in cases of tubular nephritis. The normal individual has a variation of ten points in the specific gravity of the urine collected every two hours through the day from 8 a. m. to 8 p. m. and in the twelve hour night specimen from 8 p. m. to 8 a. m. The night urine normally has a specific gravity of 1016 or higher and the quantity 400 cc. or less. If many of the tubules are destroyed the patient is unable to concentrate the urine and the specific gravity of the specimens is low. Fixation of specific gravity, a state in which the two hour specimen varies but two to four points, is of serious prognostic significance.

The above simple tests roughly indicate kidney damage with the limitations that are well known, such as the elimination of water by other channels, etc. The kidneys may be damaged but still functionally competent just as the heart may be damaged but can still perform the work required by the majority of individuals. When the damaged heart is put to extraordinary effort or when a badly damaged heart can no longer perform the work usually required, we speak of the heart as being in a state of decompensation. So with the kidneys. It is well known that one-half of the kidney substance may be removed or destroyed and the remaining kidney substance carry on the usually required work. When the kidney can no longer carry on its required function, the elimination of water, certain crystalloids and nitrogen waste, the kidney is in a state of decompensation. The best test for this state of the kidney is the amount of nonprotein nitrogen in the blood. It is obvious that if the kidney does not excrete the waste nitrogen from the blood as fast as it is being taken in, the nitrogen in the blood will increase in amount. From what has been said, it is also obvious that one or both kidneys may be damaged, as shown by the other tests, and the nitrogen of the blood be in the normal amount. The blood nitrogen is only increased when more than half of the four or five million glomeruli are destroyed. In pure tubular

nephritis there is no increase of the nonprotein nitrogen of the blood. Therefore, blood chemistry is not to be relied upon as a test for kidney damage but as a test for the efficiency of the kidneys.

Tubular nephritis is accompanied by albumin and casts in the urine, frequently with evidence of lack of ability to concentrate urine, as shown by the Mosenthal test, no change in phenolsulphonephthalein and blood nitrogen. Glomerular nephritis is associated usually with less albumin, few or no casts, blood in the urine if the glomerular lesions are acute, reduction in phenolsulphonephthalein, and if the lesions are numerous, increase in blood nitrogen. High nitrogen in the blood is not an absolute indication of fatal termination. Such kidneys may recover sufficiently to be functionally efficient.

Combinations of tubular and glomerular nephritis are not common. The kidney tests in such cases vary accordingly.

Research Hospital.

DISCUSSION

DR. D. R. BLACK, Kansas City: I am very glad indeed that Dr. Narr entered into such a thorough discussion of the physiology of the kidney before he started his paper on kidney function tests, because I don't think one can interpret kidney function tests in any sense of the word unless one has a very clear understanding of the physiology of the kidney. For example, in Dr. Narr's discussion of the two-hour test for specific gravity, I think one point that he didn't emphasize quite enough is the variation in the amount of urine passed in the daytime and at night.

I think most people interested in kidney physiology agree that over 450 cc. should not be passed at night. That simply illustrates one of the fundamental points involved in the physiology of the kidney as laid down by Ludwig. He assumed that the kidney, especially the glomerular portion of the kidney, acts as a filter and if one is going to assume that urine production is by filtration, then one must assume that the kidney must follow the natural laws of filters. In the first place the rate of flow would be determined, the pressure and the character of the substance being constant on the density of the filter. In other words, if half of the glomeruli were thrown out of commission, filtration would go on half as fast as normal, other things being constant. If the character of the substance to be filtered is constant the rate of filtration would depend on the pressure through the filter.

That is one of the ideas that made most investigators think that there was obligatory hypertension in all glomerular nephritis cases. If one were to assume that the pressure and density of the filter were constant the rate of flow would depend on the character of the substance to be filtered and inasmuch as there is practically no chance of any huge variation to occur in the blood, then that need not bother us.

About a year ago I looked over all of the cases of nephritis that occurred in one of the hospitals in Kansas City. During the previous year there were 105 cases diagnosed nephritis on the chart. There were only twenty-two of these cases in which kidney function tests or blood chemistries had been done. Of the 105 there were eighty called interstitial

nephritis. Just why that should be I don't know. I think interstitial nephritis is probably a well known term and when one sees albumin and a few casts in the urine that is the handiest thing to put down. That is the only explanation I could give because there was no evidence to substantiate such a diagnosis.

Forty-six of the cases had hypertension. That brings us up to the statement that the late Sir William Osler made. He said the most embarrassing moment of his life was when he was walking down the street of Montreal and an old fellow slapped him on the shoulder and said, "Hello, Doc," twenty years after he told him he was going to die of Bright's disease in six months because he had high blood pressure, albumin and casts in the urine.

There are two extremes in the problem. One must not pay too much attention to slight abnormalities in blood pressure but at the same time one must investigate all of them. For example, in the hypertension cases small amounts of albumin and an occasional cast will clear up beautifully under small doses of digitalis. Those are cases that show absolutely no change whatsoever in kidney function but nevertheless in a case of somewhat similar nature kidney function tests may throw a different light on the subject. At least they might prevent an untimely death in these cases.

A POSSIBLE FACTOR IN STERILITY

The recent investigations on the possible relations of diet to sterility and the discovery of a substance—vitamin E—that may be concerned with fertility in both the male and the female have been so striking and unusual that they may divert attention from other equally important factors in relation to reproduction. In addition to the elaboration of potent spermatozoa, to proper ovulation and to effective placentation, there are other conditions both anatomic and chemical that must be realized to secure successful gestation. Kurzrok and Miller, of the Columbia University College of Physicians and Surgeons, New York, have pointed out that the plug of mucus filling the cervical canal and the external os is very viscous and adhesive, and when pulled away from the cervix it forms a slimy string which is broken with difficulty. In cases that do not present pelvic pathologic changes the mucus is semi-transparent; when there is a lesion such as an infection, laceration, eversion or erosion, the cervical mucus tends to become mucopurulent in character and more adhesive. The mucous plug consists largely of a mucin and water. It presents, unless altered, a considerable barrier to the passage of spermatozoa. According to Kurzrok and Miller, semen exerts a highly specific lytic action on the mucin of the cervix. The solvent effect appears to be enzymic in character. The substance responsible for this action is thermolabile, as enzymes are; and it does not depend on the presence of spermatozoa. Tests made with mucus from a patient with a leukorrheal discharge due to a lacerated cervix, and from one with acute gonorrhea, indicated that the digesting action of normal semen is markedly diminished or stopped by the presence of pus in the mucus. The New York investigators believe that the lytic substance of the semen may be an important factor in the passage of spermatozoa up the genital tract, and that its absence may be an etiologic factor in some cases of sterility in which no explanation has heretofore been offered.—*Jour. A. M. A.*, May 28, 1927.

WASHINGTON UNIVERSITY CLINICS

CASE 3. PULMONARY TUBERCULOSIS COMBINED WITH CARCINOMA OF LUNG.

EVARTS A. GRAHAM, M.D.

From the Chest Service.

Presented at the Friday Morning Clinical Conference.

A white man, 33 years old, entered Barnes Hospital on October 13, 1928. His illness had begun in April, 1926, with a chronic cough and blood-streaked sputum, weakness and easy fatigue. A roentgenogram of his chest taken at the Jewish Hospital in October, 1926 (Fig. 1),

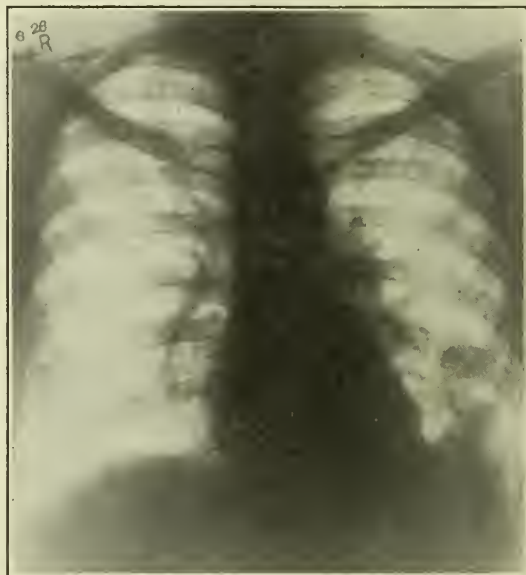


Fig. 1. X-ray (10-6-26) showing an increase in the hilus shadow on the left side. The diaphragm is slightly elevated and the costophrenic angle is hazy. Just above this there is a shadow which leads upward toward the hilus. The apices are clear but there is some atypical coarse mottling throughout the rest of the lung fields. The right side is clear.

showed haziness in the left costophrenic angle and a small shadow in the left lower lobe extending from the diaphragm toward the hilus. Both upper lobes were clear. His symptoms persisted and in April he consulted Dr. J. J. Singer who found in the left cavity signs of fluid which were verified by a roentgenogram (Fig. 2). The following month the patient was sent to the Jewish Sanatorium where Dr. Selig Simon found tubercle bacilli in the sputum and also in the bloody fluid which was aspirated from the chest. There was no fever. Treatment, consisting of repeated aspiration of the fluid and replacement with air, was begun but soon had to be abandoned because of the development of adhesions. During this time pain was felt in the left side of the chest and became so severe that sleep was obtained only



Fig. 2. X-ray (4-26-27) showing dense shadow in the left base extending upwards along the lateral border of the chest and also up on the mediastinum so that the upper border of the shadow is concave with concavity upwards. This was thought to be an effusion which was verified later by the aspiration of bloody fluid.



Fig. 3. X-ray (10-4-28). There is a dense haziness throughout the left side with contraction of structures and great narrowing of the intercostal spaces. Lipiodol injection shows a normal trachea but the shadow of the left bronchus is greatly narrowed with numerous filling defects. The oil enters two of the smaller bronchi leading to the upper lobe but none enters the lower. The shadows end abruptly as if blocked.

by the use of narcotics. In March, 1928, an exeresis of the left phrenic nerve was performed at the Jewish Hospital. Examination showed a great increase in the density and extent of the shadow with contraction of structures in the left chest. The operation did not relieve his pain. On October 4, 1928, a lipiodol injection of the bronchial tree was made (Fig. 3) and showed a narrow, irregular shadow corresponding to the left main bronchus. Only a small amount of lipiodol squeezed past the end of this bronchus into the upper smaller bronchi and none went into any of the lower bronchi.

The first impression of this case had been carcinoma of the lung, a suspicion strengthened by consideration of the mode of onset, the freedom of the apices from involvement and the presence of bloody fluid in the pleural cavity. A report on the chest films of the case by Dr. P. C. Schnoebelen, radiologist of the St. Louis Jewish Hospital, stated that a search should be made for a "new growth or chronic nontuberculous inflammation of the left lower lobe." Later the marked pain and the continued absence of fever made the diagnosis of tuberculosis unlikely. Furthermore, the result of the lipiodol injection showing blockage of the bronchi in the lower lobe would be most unexpected in a case of tuberculosis. The discovery of tubercle bacilli in the sputum and

pleural exudate, however, could not be disregarded.

The patient came to Barnes Hospital for a thoracoplasty. At this time his pain was so severe that morphin was necessary for sleep. Although he had no fever he was greatly emaciated, having lost 55 pounds during the period of his illness. There were firm painful nodules over the surface of the ribs on the left side. Hard nodes could be felt in the left axilla. The left side of the thorax was narrow and the physical signs and X-ray plate showed compression and atelectasis of the left lung. Aside from a slight anemia, examination of the blood and urine revealed nothing of note. A thoracentesis was attempted by Dr. Singer but the intercostal spaces were so narrow that the needle entered only with great difficulty.

On October 17 the eleventh, tenth and ninth ribs on the left side were removed. The ninth rib was softened by what seemed to be a tuberculous abscess and during the process of removal the rib broke. Specimens from this rib and from the soft tissue underlying it were sent to the surgical pathological laboratory. The soft tissue was unfortunately mislaid and the decalcification of the rib could not be completed before the next operation so that a microscopic examination of the tissue was not available in time to prevent the second stage of

the operation. The operative wound healed by primary intention.

Excruciating pain continued. Tubercle bacilli were again found in the sputum. Because of some vomiting and distension which developed at this time, a fluoroscopic examination of the gastro-intestinal tract was made. No evidence of an organic lesion was found.

Although the patient was not in the best condition, a second operation was done on December 1, and the eighth, sixth and fifth ribs were removed. The seventh rib was found to be over-riding the eighth. The seventh, sixth and fifth were fused together as shown by this specimen (Fig. 4) and had to be removed in

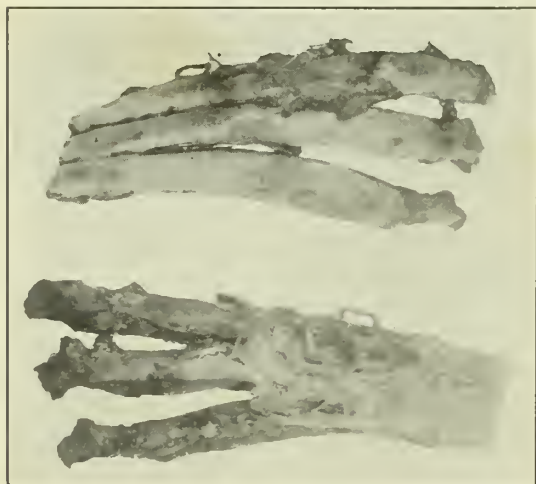


Fig. 4. Photograph of ribs removed at second operation, showing a bony fusion which existed between the 5th, 6th and 7th ribs at one place.

one piece. The tissue immediately below the ribs looked very much like tuberculous granulation tissue. A specimen was removed for microscopic examination. The painful lumps which had been felt on the anterior chest wall before operation were not glands but little masses of intercostal muscle squeezed out between the ribs.

The patient did not endure the operation well. A transfusion was given but he died on December 4. In spite of every effort an autopsy could not be obtained.

I have brought here a section of the piece of soft tissue which was removed at the second operation (Fig. 5). It shows old fibrous tissue in which there is a growth of malignant cells. These are fairly large and have large dark staining nuclei. Mitotic figures are seen. The picture is that of an adenocarcinoma which probably arose in a bronchus. Section of the decalcified ninth rib showed an invasion of the bone by the same process. No tubercles are found either in the soft tissue or in the rib.

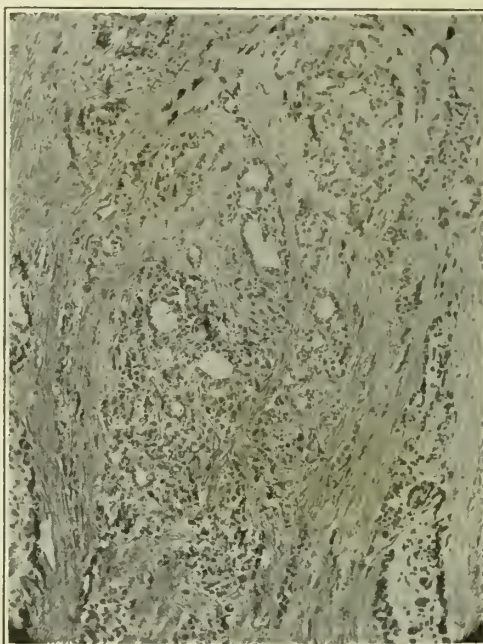


Fig. 5. Microphotograph of tissue showing structure of adenocarcinoma.

DISCUSSION

The problems presented by this case were of several different kinds. The excruciating pain of which the patient complained is very unusual in tuberculosis even when it involves the ribs. We considered this feature as distinctly atypical of an uncomplicated tuberculosis but the patient was of a strongly emotional nature and he had also become a morphin addict by the time of his admission to the Barnes Hospital. We felt, therefore, that his pain may have been unduly exaggerated. On the other hand, the presence of the pain was one of the most compelling reasons for undertaking the operation. This was the feature of the case which caused the patient to urge upon us the question of a thoracoplastic operation. In looking back, now that we have positive evidence of a carcinoma involving the ribs, it is easy enough to understand why the patient had his severe pain. The repeated finding of tubercle bacilli, both in the sputum and in the pleural fluid, seemed to make the diagnosis of tuberculosis absolute. We should have considered, more than we did, the possibility of a carcinoma of the lung in association with tuberculosis. In our own experience this association has been very rare in a fairly large number of cases of primary carcinoma of the lung. Ewing¹ states the chief etiological factor in primary pulmonary car-

cinoma is tuberculosis. His conclusion, however, seems to be based on the single series of thirty-one cases reported by Wolf. In our own series, and in those of others, pulmonary tuberculosis has been an infrequent accompaniment of primary carcinoma of the lung. Although the symptoms and the clinical features of this case were fairly typical of a pulmonary carcinoma, nevertheless the patient's age (33) made the possibility of carcinoma seem less likely.

Another point about this case which is of unusual interest is the bony fusion of the ribs. After a pyogenic empyema it is not unusual to see such a fusion but it is extremely rare in uncomplicated tuberculosis; also in our other cases of carcinoma involving the pleura and the chest wall we have not seen it. Sauerbruch,² however, in his book on chest surgery gives a picture of a similar fusion of ribs in a case of his with a so-called endothelioma of the pleura. Since most of these so-called endotheliomas are really metastatic involvements from a primary carcinoma of the lung, it is probable that his case was really similar to ours.

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CASE 4. MYXEDEMA WITH PARTIAL HEART BLOCK AND SEVERE ANEMIA BOTH OF WHICH DISAPPEARED UNDER THYROID THERAPY.

DREW LUTEN, M.D.

From the Medical Service of Barnes Hospital.

A woman of 35 came to the hospital in August, 1916. She had been married at 16 and had been infected with lues shortly after her marriage. At 21 the symptoms referable to the luetic infection became apparent and for eight years she was rather intensively treated with mercury and salvarsan. When first seen at Barnes Hospital she was recovering from symptoms referable to an intravenous injection of salvarsan. At that time she had an anemia, evidence of hypothyroidism, a partial heart block and symptoms which were suggestive of tabes. She also had a troublesome menstrual disturbance. Her red blood cell count was 3,500,000 and the hemoglobin varied between 50 and 60 per cent. For two years she had noticed a puffiness about the eyes, thick lips, slowness of speech, imperfect enunciation and a laziness which was unusual for her. These changes were

evident in her appearance and in her apathy at the time of examination. She had also suffered from shortness of breath and some swelling of the ankles. Her heart was studied both physically and electrocardiographically by Dr. G. Canby Robinson. The rate was slow and the electrocardiograms showed that the bradycardia was due to heart block. The block, however, was not quite complete, and it was entirely relieved by atropin. The blood pressure was persistently low; systolic 85, diastolic 65. The patient's menstrual difficulty had started in 1912 with clots and cramp-like pain which appeared about every six months. The periods tended to be profuse. Pelvic examination showed nothing abnormal except a small tumor in the right adnexal region. Beginning in 1915 she had some numbness from her waist down, some tingling, a sensation of crawling beneath the skin, weakness of the legs and pains in the lower extremities. With the syphilitic history this was suggestive of tabes but her reflexes were present and the spinal fluid Wassermann was negative along with a two plus blood Wassermann. She was given small and probably insufficient doses of thyroid extract for a short period without notable change either in her heart block or myxedema.

She was admitted to the hospital ten years later (in April, 1926). She still had anemia which had become rather more severe. The red blood count was 2,800,000; hemoglobin 41 per cent. Her menstrual disturbance had greatly increased and she had severe headache with each period. Her walking had become more and more difficult and she was unable to lift her feet. There was deafness, loss of visual acuity, precordial pain and smothering sensation at night. Her heart was slightly enlarged both to the left and to the right. Her blood pressure was 90/60; heart rate 42. The knee and ankle jerks were equal and active, the pupils reacted to light, the gait was uncertain and there was a complete gastric anacidity. The basal metabolic rate was -47 per cent. Electrocardiograms again showed partial heart block. She was considered to have a myxedema, a partial heart block, a possible angina pectoris and a persistent hypotension. Thyroid was begun on May 5, 1926, and was continued until June 17. The metabolic rate rose to -9 per cent. During this period the patient improved remarkably. The red blood count rose to 4,340,000 with a hemoglobin of 65 per cent. The heart

block disappeared and subsequent electrocardiograms showed no recurrence. There was also an improvement in the shape of the ventricular complexes of the electrocardiogram.

The patient was discharged with directions to continue thyroid. This she neglected, and, after being without it for three months, returned to the hospital with a very complete picture of myxedema and a basal metabolism of -37 per cent. Anemia, however, had not recurred and the mechanism of the heart beat was normal with a rate of 98. The ventricular complexes of the electrocardiogram, moreover, showed the improved shape previously noted. She still had menorrhagia. A dilatation and curettage was performed on October 16. While in the hospital and under constant observation she was given 45 grains of dessicated thyroid over a four-day period. This caused intense itching and a diffuse erythematous eruption but resulted in rapid disappearance of all symptoms of myxedema. The improvement in her general condition is well portrayed by photographs taken while she was myxedematous and after an interval of about eight months during which she was actively treated. On a maintenance dose of two

in her room in deep coma. She was taken as an emergency to a hospital where she died after a diagnosis of diabetic coma had been made. No autopsy was procured and



Fig. 2. Photograph taken June 4, 1927.

no history of the development of diabetes was obtained.

DISCUSSION

Study of this patient's electrocardiograms is interesting because it shows the effect of thyroid therapy in removing A-V block, in itself a very rare observation. It also offers certain suggestions as to the manner in which thyroid deficiency may be responsible for the production of the block.

The electrocardiograms taken at the time the patient first came under observation are shown in Fig. 3. The ventricular complexes are slur-



Fig. 1. Photograph taken October 25, 1926.

grains each day there was no recurrence of the heart block or of the anemia. Her menstrual disturbance ceased. She was able to work and was interested in life. She was seen from time to time until January, 1928. In May, 1928, she was found

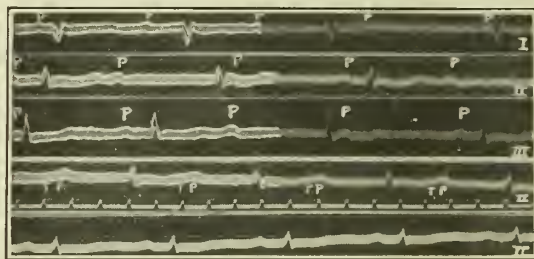


Fig. 3. Electrocardiograms made August 1, 1916. Leads I, II and III are shown above. Below are shown two portions of the record in Lead II taken at intervals after atropin administration. At the time of the fourth strip no auricular impulses were blocked, but the P-R time was abnormally long. At the time of the fifth strip the P-R interval had shortened to about 0.21 of a second. Time in 1/5's of a second. For clearness, parts of this figure have been traced.

red and are of relatively low amplitude, features frequently observed in patients with

myxedema. Before the administration of atropin the auricular rate was 70 and the ventricular rate 40 per minute. At first glance, the record before atropin might give the appearance of complete A-V dissociation. There can be little question that the last auricular complex of the first strip arises independently of auricular influence. This is true also of the second complex of the second strip and the third complex of the third strip. The interval separating each of these complexes from the ventricular complex immediately preceding it, therefore, is a measure of the inherent ventricular rate. Further study, however, shows that under favorable conditions the A-V bundle still transmits auricular stimuli. Other complexes in each strip occur at intervals which are shorter than the idioventricular interval, and in each instance it is observed that an auricular systole immediately precedes the ventricular complex. In other words, an auricular systole (P-wave), when favorably placed, stimulates the ventricle and causes the latter to beat before its rhythmic period is completed.

It is notable that atropin administration had no effect on the rate of the auricles, but that, without an acceleration of rate, its effect on the bundle was such as to remove the block. It is one of the rare instances in which atropin has restored A-V conduction. It is well known that vagus tone affects conductivity in the bundle and that transient A-V block due to vagus stimulation is frequently produced experimentally. Persistent block due to increased vagus tone, however, has rarely been demonstrated. Instances of the relief of heart block by atropin, particularly in the absence of acceleration, are regarded as demonstrating that vagus stimulation in such cases is responsible for the block. The relief of A-V block by atropin and also by thyroid extract, in this case, therefore, might be regarded as evidence that thyroid deficiency had produced the block through the mechanism of vagus stimulation. The fourth and fifth strips of Fig. 3 show the progressive shortening of conduction time resulting from atropin administration.

The electrocardiogram taken at the time of the patient's second admission is shown in the upper part of Fig. 4. The ventricular complexes in this record are essentially like those in the record of 1916, and the impairment of A-V conduction still persists. In most cycles the P-R time is about 0.24 of a second, while occasionally an auricular beat fails to stimulate the ventricle. Three additional records were made in the following two weeks. One of these is shown in the lower two strips of Fig. 4. This portion of the figure shows part of a continuous record in lead II. The

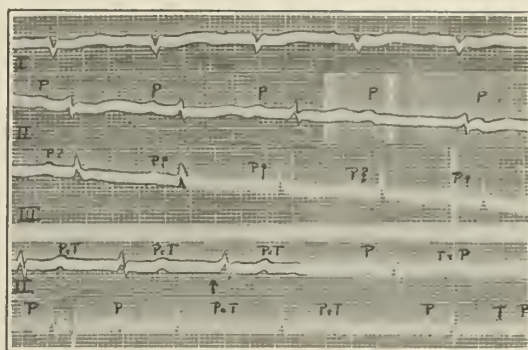


Fig. 4. The upper part of the figure shows Leads I, II and III of the electrocardiograms made April 27, 1926. The complexes are small and the P waves, particularly in Leads I and III, are indistinct. One P wave in Lead II is blocked. The lower two strips of the figure are continuous and are a part of the record in Lead II, made May 10, 1926 (five days after thyroid therapy was started), showing the effect of right vagus pressure. Pressure was applied at the time indicated by the arrow. The block which follows enables one to analyze the preceding part of the record. Each P wave has been superimposed on the T wave of the preceding ventricular complex. All auricular impulses stimulate the ventricle until the application of vagus pressure. For clearness parts of the figure have been traced.

part of this record which is not reproduced was similar to the first two complete cycles of the figure (fourth strip). In it the P-R interval was about 0.46 of a second and the P and T waves were superimposed. Right vagus pressure was done at the time of the third ventricular complex. The following auricular beat failed to stimulate the ventricle and the ventricular responses were somewhat irregular for a few cycles. Following the part shown in the figure, the P and T waves were again superimposed and there was a P-R time of 0.46 to 0.48 of a second. Right vagus pressure produced a somewhat higher degree of block than that produced by pressure of the right vagus. Thyroid had been started May 5, 1926, five days before this record was made. Occasional A-V block was observed in records made May 7 and 8. In the record of May 10, 1926, which is reproduced, in part, in Fig. 4, block does not occur (except under vagus pressure), although the P-R time is still abnormally long. In no record thereafter was there A-V block, and in none was a P-R time longer than 0.20 of a second observed. Electrocardiograms were made on May 19, June 6, July 7, and upon fifteen other occasions during the following seventeen months. The electrocardiogram of May 19 showed a P-R time of 0.18 of a second. The subsequent records showed P-R intervals of from 0.16 to 0.20 of a second. The shape of the ventricular complexes assumed a more nearly normal appearance in the record of July 6, 1926, and this improved shape persisted. Fig. 5 is the record of November 19, 1927.

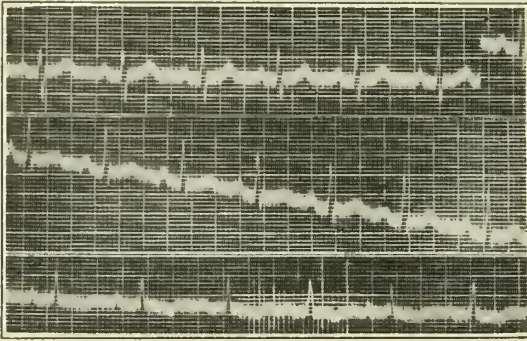


Fig. 5. Leads I, II and III of the electrocardiogram made November 19, 1927. Note the change in shape of the ventricular complexes, and the normal P-R interval. Time in fifths of a second.

The heart block in this case was of great chronicity. The patient was examined over a considerable period of time in 1916, and was never seen to be free of the block. When examined ten years later, in the spring of 1926, she still had a partial block. Several etiologic factors,—syphilis, arteriosclerosis, thyroid deficiency,—were regarded as possibly responsible for the interference to A-V conduction. Defects in conduction, shown by a prolonged P-R interval, are not infrequently observed in cases of thyroid insufficiency. While in our case myxedema might be considered the primary cause of the trouble, it is possible that the old syphilitic infection was an additional factor impairing A-V conduction and that the block resulted from a combination of both effects. It seemed unreasonable to attribute the removal of the block to anything except the thyroid treatment. If this explanation be accepted, however, the case stands as an almost unique example of such an effect. In 1916, Blackford and Willius¹ obtained beneficial effects in four cases of Adams-Stokes syndrome and complete heart block by the administration of thyroxin. In none of the cases was there a return to normal rhythm. The symptomatic benefit was ascribed to a quickening of the idioventricular rate, a contention which further study failed to confirm. Aub and Stern² studied intensively the total metabolism and the heart in a case of heart block. For four months they gave large doses of thyroid. The basal rate was increased to +47 per cent., the auricular rate to 120 beats per minute. The heart block, however, continued and the ventricular rate was not affected. In 1924, Willius³ reported again on the relief of Adams-Stokes syndrome by thyroid preparations but agreed that the drug exerted no effect upon

the idioventricular rate. This year, Drake⁴ has reported a case of complete heart block which, following dosage with thyroid extract, underwent a series of changes, including a period of 2:1 block, a bigeminy of the ventricle and a final picture of normal rhythm.

In myxedema, although slow pulse is frequent and although the interval between auricular and ventricular contraction is often prolonged, heart block appears to be very uncommon. We have not encountered a single case in the literature. In our clinic, however, we observed, during the summer of 1924, a patient in whom the condition may have been present. This was a man who had had a complete heart block for about a year and a half. He came to the hospital on account of frequent Adams-Stokes seizures. Many electrocardiograms invariably showed a complete A-V dissociation. His basal rate was —18.4 per cent. and he was given thyroid extract as an experimental procedure. After sixteen days of the thyroid administration his block disappeared. His basal rate at this time was —7 per cent. The amount of thyroid was diminished and after about two weeks there was a return of the heart block. Upon subsequent thyroid administration over a period of several weeks the block persisted, but seventeen days after the withdrawal of thyroid there was a second period of normal cardiac mechanism. Meantime his metabolic rate had risen to +13 per cent. This was followed after six weeks by complete A-V block. The patient had received no thyroid during this period. The block persisted in spite of the fact that thyroid in adequate amount was again administered. It could not be regarded as fully established that the temporary removal of the A-V block was due to the thyroid therapy but the two coincidences were most impressive.

DR. DAVID BARR: Anemia of severe grade such as occurred in this patient is not infrequent in idiopathic myxedema. Kocher⁵ and others have noted it also in postoperative hypothyroidism. Following thyroidec-tomy in dogs and rabbits, the red blood cells and hemoglobin may be decreased as much as 30 per cent.

Administration of active thyroid preparations may cause an increase in the number of red blood cells in normal animals. There is considerable evidence that the thyroid secretion is an important factor in blood regeneration.

In patients with myxedema the red blood cell count seldom falls below 2,500,000.

Blood pictures both of chlorotic and pernicious anemia have been reported. MacKenzie,⁶ who reviewed most ably the clinical aspects of the subject, observed three cases which were diagnosed as pernicious anemia before the basal metabolic rate was determined. A still more recent review was made by Stone⁷ who like many others found that the anemia associated with myxedema disappears promptly with the administration of thyroid but is not affected by other forms of therapy. In our patient, the anemia may have been the result of two factors: (1) the fault in regeneration of red blood cells apparently common in all forms of hypothyroidism, and (2) the constant blood loss from menorrhagia which is not infrequently seen in myxedema of younger women.

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POSTOPERATIVE CATARACT INFECTIONS

Following an operation, most infections probably gain entrance from the conjunctiva, since this cannot be thoroughly sterilized. Walter Scott Franklin, Santa Barbara, Calif., and Frederick C. Cordes, San Francisco (*Journal A. M. A.*, Dec. 22, 1928), infer that the normal conjunctiva is practically never free from organisms. As a rule these organisms are most numerous at the inner canthus, especially in the neighborhood of the caruncle. The authors feel that when the conjunctiva appears to be normal and the lacrimal sac does not show any evidence of inflammation it is not necessary to do a bacteriologic examination before an operation. When there is a suggestion of secretion from the conjunctiva, it should be done. In making a bacteriologic examination a conjunctival smear is unsatisfactory, as a relatively large percentage of negative smears are positive to culture. The authors state that the use of 1 per cent. silver nitrate applied to the everted lids gives satisfactory results. In addition, the use of mercuric oxycyanide, 1:7,000, in the form of drops to be used at home every four hours, forms a valuable aid. Lacrimal sac infection must be dealt with before an operation can be considered. In the milder types, without complete closure of the lacrimal canal conservative treatment should be tried. Lavage, through the lower canaliculus, with mercuric cyanide, 1:10,000, will clear up a certain percentage of cases. In several instances the use of 2 per cent. ethylcupreine hydrochloride has given excellent results. When actual obstruction is present, surgery should be resorted to. Extirpation of the tear sac is the best procedure in these cases, and to be entirely safe the canaliculi should be opened and the mucous membrane destroyed.

DIAGNOSIS AND TREATMENT OF ULCERS OF THE LESSER CURVATURE OF THE STOMACH

Dr. H. W. Carson, of England, states that chronic ulcer of the stomach, as it is most frequently seen by the surgeon, is confined to a small area of the stomach wall, occurring at or near the pylorus and along the lesser curvature. There is so far no generally accepted explanation of the causation of gastric ulcers. The tendency to recurrence after excision of an ulcer of the lesser curvature is a point in favor of the suggestion that the ulcer is not purely a local happening. Two types of ulcers are commonly seen. The usual one is a sharply cut ulcer with much induration, which has a tendency to penetrate through the stomach wall, but does not perforate into the peritoneal cavity because it causes a protective thickening of the gastrohepatic omentum which it seals off. Later on the base of the ulcer may become adherent to the liver or pancreas. The other type of ulcer extends superficially rather than deeply and tends to involve the posterior surface and sometimes the anterior surface of the stomach. Both these may give rise to the hour-glass stomach, a complication due to scar-tissue contraction. Ulcers may be multiple. Ulcers of the lesser curvature occur more often in men than women during the 45-55 years. The history is rarely less than two years and generally more than five. The most important symptom is pain, situated high up in the epigastric angle and sometimes even retrosternally, which comes on about one and a half hours after food and is practically never relieved by taking food. At first the pain is intermittent but the intervals become shorter and finally it is more or less constant. It is at this stage that a typical pain occurs about the level of the twelfth dorsal and the first lumbar vertebrae. The next prominent symptom is vomiting, of the irritation type, which is small in amount and consists of mucus and saliva. The third most constant symptom is loss of weight. Hematemesis is not at all uncommon. The appetite is good but the patient dare not satisfy his hunger because of the pain. The diagnosis is confirmed by a chemical investigation of the stomach contents before and after a test meal and X-ray examination after a barium meal, the latter being the more valuable. In this way, not only can the exact position of the ulcer be determined, but its degree of fixation, its attachment to the liver or pancreas, and the presence of such a complication as hour-glass stomach are plainly shown. The exact position of the ulcer is important as it has a direct bearing upon treatment. Examination of the abdomen does not give much assistance as the ulcer is high up and adherent. There are two complications of lesser curvature ulcers—hemorrhage and hour-glass stomach. He sums up his views on treatment as follows:

(1) Gastrojejunostomy is not a curative operation where the pylorus is unaffected.

(2) Excision by knife or cautery is often followed by recurrence and should not be done.

(3) Excision with gastrojejunostomy gives a fair measure of success, but may be more difficult to do and more trying to the patient. It should be confined to small non-adherent ulcers.

(4) Sleeve resection is a good operation, but practicable in only a small proportion of cases.

(5) An ulcer eroding the liver or pancreas should if possible be treated by partial gastrectomy.

(6) Jejunostomy or duodenal feeding may prove to be a valuable method of treating ulcers so high on the lesser curvature that direct attack is technically impossible.—*International Clinics*, December, 1927.

THE JOURNAL

OF THE

Missouri State Medical Association

FEBRUARY, 1929

EDITORIALS

PITOCIN AND PITRESSIN

The epoch-making discovery and isolation of insulin, the active sugar utilizing principle of the isles of Langerhans of the pancreas, by the scientists of McGill University created a world-wide stir the echoes of which are only now beginning to return, the ultimate value of the discovery having not even as yet been definitely determined.

At a recent meeting of the American Association for the Advancement of Science there was reported by Dr. Oliver Kamm, Director of Chemical Research of Parke, Davis and Company, the isolation of two hormones from the posterior lobe of the pituitary gland, a discovery that is being held by many scientists to be of equal importance to the isolation of insulin and the discovery of adrenalin. For the work Dr. Kamm was awarded the \$1000 prize for the "most noteworthy contribution to science" presented at the annual meeting.

The two hormones isolated by Dr. Kamm from the pituitary gland are named alpha and beta (commercially pitocin and pitressin respectively), said to be the first time that any one has demonstrated that one gland might contain more than one hormone. The alpha hormone is the so-called oxytocic. The beta hormone is the blood-pressure-raising principle.

In addition to its pressor activity the beta hormone has the power of controlling the excessive output of water and as such presents many potentialities and clinical applications. Its action in controlling the water output is not upon the kidneys, as has been assumed to be the action with the former extract of the posterior lobe of the pituitary, but appears to be directly upon the individual tissues, assisting them in their utilization of water. Hence, its chief application and usefulness lie in diseases characterized by excessive loss of water, such as diabetes insipidus, burns, cholera, other infectious diseases and surgical shock.

How useful the clinical application of this new discovery may be remains for future intensive study. The suggestions of its application are interesting and its discovery is a step forward in the study of the endocrine glands. Speculation might be indulged in regarding the relation of these substances to the clinical cases

of supposed pituitary gland involvement, the classification of which has always presented certain difficulties arising from inability to correlate the clinical type cases with known physiologic or anatomic changes in the gland.

The indiscriminate use of posterior lobe extracts in all "pituitary type" cases should be seriously questioned. If only two hormones exist and can be isolated from the posterior lobe of the pituitary gland it remains to be seen what part they play in the clinical cases. If, as Dr. Kamm suggests in his paper, certain individuals are sensitive to the action of the beta hormone—known as "physiological wets"—and these individuals are almost invariably of the fleshy type, then may it not be true that the adiposity, which has been attributed to deficiencies of the posterior lobe of the pituitary gland, be actually associated with an increased beta hormone content so that water retention is easily accomplished by the individual and so assists in the accumulation of adiposity? Conversely it may be possible to add weight to the thin, scrawny type of patient—the "physiological dry"—by the use of pitressin.

The discovery of these substances adds a new impetus to the study of the endocrine glands, opens up new fields and restores a modicum of faith to those who have doubted that the active principle of the endocrine glands would ever be isolated. Fortunately, perhaps, for the preservation of the scientific attitude in the study of their clinical application, the hormones have not yet been produced in large quantities there being at present only a very few grams of highly purified alpha and beta hormones available.

THE INFLUENZA EPIDEMIC

Another wave of influenza has swept across the country and found us no better informed as to its specific causes than in 1918, but with a little more wide-spread understanding of general therapeutic measures and more efficiently organized forces to combat it or any other epidemic. Physicians commonly remark, with only a modicum of extravagance, "Nobody knows anything about flu." Movements are under way, however, whereby we may yet learn something about influenza without a recurrence of that expensive source of clinical material, another epidemic.

The first steps already have been taken in that direction following a conference called at Washington early in January by the U. S. Public Health Service. A national survey was organized by the Service, to begin on the Pacific Coast, since the epidemic originated there and the work can be conducted more thoroughly where the disease has run its course.

It will be an exhaustive inquiry into every discernible and demonstrable manifestation of the epidemic. Laboratory research meanwhile will go on under the direction of Drs. W. H. Frost and G. W. McCoy, of the Hygienic Laboratory in Washington.

Federal health authorities will supervise the survey in at least 8 or 10 cities. A number of city health officers volunteered to make the studies in their own cities and turn data over to the Public Health Service, and similar surveys are to be conducted by county health authorities and a staff of civilian employes in rural communities.

Recommendations brought out by the conference included extensive and intensive investigations by the Public Health Service with its available facilities; special efforts by local and military authorities of every state to report influenza adequately, particularly in regard to general conditions peculiar to their localities; and that all states make influenza reportable in order that the data be as complete as possible.

It is possible also that some side-light on influenza, especially as to its differentiation from the ordinary cold, may be developed by the \$100,000 research program of Johns Hopkins University on the common cold. One reason why it is so difficult to differentiate between the flu and the cold is, for some of us at least, because so little is known of either condition. It is a challenging thing that these two diseases, frequently innocuous in themselves but fraught with ultimate danger, should remain among the most common but least understood.

This recent wave was reported generally mild throughout the country, and seemed to run its course in a very short time. By January 4 Health Commissioner Starkloff, of St. Louis, could announce that the number of influenza cases reported in that city had fallen below other infectious diseases, and the experience of St. Louis physicians with the disease was summed up at a meeting of the St. Louis Medical Society, January 22.

At that meeting several speakers took exception to the Health Commissioner's rule that all influenza cases be reported, they taking the view that general practitioners were unable to diagnose many cases of influenza at first contact because of the lack of outstanding characteristics. The enormous physical depression of influenza was described as its only unique symptom, and quite disproportionate to its other symptoms in intensity, by Dr. Lawrence D. Thompson, of Washington University Medical School, and Dr. Ralph Kinsella, of St. Louis University Medical School. Dr. Jacques Bronfenbrenner, Washington University bacteriologist, said that the Pfeiffer bacillus definitely was not the true influenza bacillus.

Perhaps the sum of medical experience in

this last wave, as in those prior to it, was expressed by W. G. Campbell, director of the regulatory work of the Department of Agriculture, who said, after announcing that immediate action would be taken against preparations represented as cures or preventives of influenza, la grippe and pneumonia, "It is a fact generally accepted by medical authorities, based on world-wide medical experience, that there is no known drug or combination of drugs that will cure influenza."

But that verdict will not stand forever. Physicians and researchers everywhere are plugging away at influenza. Man's epidemic enemies have fallen before them one by one. Somewhere, perhaps in a great laboratory or perhaps at a farmer's bedside beneath a kerosene lamp, a weapon will be found to drive this enemy to the limbo where it has been preceded by a long line of others, stubborn though it is.

KEEP THE "BABY" CLEAN

A campaign against fraudulent radio advertising has been begun in Chicago by station WBBM following a conference sponsored by the Chicago Association of Commerce, the Chicago Better Business Bureau and the American Medical Association. The medical association was represented at the conference by its president-elect, Dr. Malcolm L. Harris, and the editor of the *Journal*, Dr. Morris Fishbein.

It was the consensus of opinion among those present that the cleanup of broadcast advertising should come from within the lusty infant industry rather than from the outside, and the belief was expressed that if something is not done we may expect legislative bodies to take action looking toward censorship.

"The broadcasting industry has now reached a stage where it must adopt stringent rules to protect the listening public from fraud," said Homer J. Buckley, of the Association of Commerce, who presided. "Get rich quick promoters, quack doctors and questionable real estate concerns whose advertising will not be accepted by reputable newspapers and magazines are now using the air to advance their schemes. We must keep our faith with the listening public and give them protection."

Buckley read a letter from Ira E. Robinson, chairman of the Federal Radio Commission, as follows:

"The movement to eliminate the broadcasting of dangerous and untruthful advertising is commendable. I am much impressed with the desirability of barring from the air much that is now going over it. Radio is a great public utility which must be conserved for the general uses of the public. Doubtless further legislation is necessary on this line."

A committee was appointed to draw up recommendations for every radio station in the country. Members of the committee appointed by Chairman Buckley are William S. Hedges, president of the National Association of Broadcasters; Morgan L. Eastman, WENR; Flint Grinnell, Chicago Better Business Bureau; J. Mayland, WLS, and William Clark, the *Chicago Evening American*.

THE NEWTON BILL—HEIRESS OF THE DYING SHEPPARD-TOWNER ACT

In Congress a very determined effort is being made to continue the activities of the Sheppard-Towner Act after that obnoxious piece of legislation expires by limitation on June 30, 1929.

The Newton Bill, introduced by Representative Newton, of Minnesota, perpetuates the principles of the Sheppard-Towner Act but on an even broader basis. It appropriates a million dollars annually for the Child Welfare Extension Service in the Children's Bureau of the Department of Labor and establishes as a permanent policy federal supervision of maternity and infant care throughout the country.

Under the Newton Bill (H. R. 14070) the Children's Bureau would be authorized to carry on its activities independent of state agencies; it leaves to the Children's Bureau the amount of federal money to be spent in any state and the amount that the Bureau will demand as the price of the state's participation in the work; it makes the chief of the Bureau chairman of a board and she appoints five of its nine members; it does not require the chairman to consult with her board unless she sees fit and she may reject or accept the board's advice at her pleasure; it lays down no line of demarcation between the welfare and hygiene of mothers and children and the welfare and hygiene of the rest of the people so as to limit operation under the Act to a clearly defined field; it creates a lay organization to do work now being successfully done by another federal bureau of experts—the U. S. Public Health Service.

The Board of Trustees of the American Medical Association has voted to oppose the passage of H. R. 14070 and requests our co-operation in defeating the measure. All county societies have been notified of the situation and we hope the members will take action to inform their representatives at Washington of the objectionable features in this bill and request them to oppose its passage. In doing this they should refer to H. R. 14070, a bill to provide a Child Welfare Extension Service and for other purposes.

LEAGUE OF NATIONS INVESTI- GATES ALCOHOLISM

A resolution of the Assembly of the League of Nations, calling for an investigation of alcoholism, provoked a long discussion at the last session of the League's Health Committee, October 24 to 31 at Geneva. The resolution directed the committee to "collect full statistical information regarding alcoholism, considered as a consequence of the abuse of alcohol, giving prominence, *inter alia*, according to the data available, to the deleterious effects of the bad quality of the alcohols consumed."

This was the longest discussion of a crowded session. Matters considered included the study of leprosy in Brazil, infantile mortality in Latin America, health insurance and preventive medicine in Uruguay, the mosquito-borne dengue epidemic which infected 850,000 persons and caused 1,372 deaths in Greece, international work in vaccination, cancer and many other lines, and the adoption of the report of the Malaria Commission. Apparently the League Health Committee, with the reports of the world's epidemiologists at its finger tips, does not find the treatment of malaria so simple as many physicians and a great many laymen now believe it. The report emphasized the necessity of acquiring wider knowledge of the disease, the parasite and the mosquito, suggesting that each government establish a permanent organization of several selected workers to devote their whole time to that purpose. Research programs were proposed on inchoa alkaloids and other preparations, and on housing in relation to the disease. General rules were outlined for choosing and applying the methods to combat the disease in any particular area, and a number of subjects were brought up for research in relation to epidemiology, biology of the malaria-bearing mosquito, the disease in man and various antimalaria measures.

An interesting contribution to the discussion on alcohol was made by the only member present from America, Dr. Alice Hamilton, Assistant Professor of Industrial Medicine in the Harvard Medical School and former Medical Investigator for the Illinois Commission on Occupational Diseases and the United States Department of Labor. As the sole representative of a country which had tried absolute prohibition for ten years, she remarked, she should be able to give statistics on the disappearance of alcoholic diseases. But that was not the case, she added, for prohibition had

not stopped drinking in the United States, but merely changed it. Chronic alcoholism had decreased but acute alcoholism had increased.

Surprisingly, a small percentage of wood alcohol had been found to mitigate the toxicity of lethal doses of ethyl alcohol, she declared. Many cases of acute alcoholism, often resulting in death, had been studied. For many years, she said, it had been the practice of bootleggers to add 2 to 5 per cent. of wood alcohol to industrial alcohol. Clinical observations and postmortem examinations had shown that methyl alcohol was not the cause of death, but that the cause was the massive dose of ethyl alcohol. Experiments on animals, she related, had shown that toxic effects of ethyl spirits were reduced by the addition of small percentages of methyl.

Dr. Hamilton earnestly warned the committee of the maze of prejudice, and of factors far from scientific inquiry, into which the committee might be projected. Referring to the wording of the resolution, she suggested that the committee might begin with a definition of the word "abuse."

The committee decided to ask the Finnish, Polish and Swedish Health Services, which had presented the resolution to the Assembly, to state the particular public health problems for which they desired international collaboration, and adjourned the question to the next session.

NEWS NOTES

The following articles have been accepted for New and Nonofficial Remedies:

Abbott Laboratories

Ampoules Dextrose, 20 cc.

Ampoules Dextrose, 50 cc.

Tablets Cinchophen-Abbott, 5 grains

Armour & Co.

Concentrated Liver Extract-Armour

Eli Lilly & Co.

Ephedrine Hydrochloride-Lilly

Pulvules Ephedrine Hydrochloride, $\frac{3}{8}$ grain

Pulvules Ephedrine Hydrochloride, $\frac{3}{4}$ grain

Solution Ephedrine Hydrochloride-Lilly, 3%

MacDowell Bros.

MacDowell's Wheat-Nut-Casein Dietetic Flour

Merck & Co., Inc.

Bromipin 33 Per Cent.

H. K. Mulford Co.

Pirquet Test for Tuberculosis (Bovine Type)

Tuberculin Ointment (Moro Ointment) (Bovine Type)

Tuberculin Intracutaneous (Bovine Type)

Antivenin (Bothropic)

National Drug Co.

Diphtheria Antitoxin

Normal Horse Serum

Pertussis Vaccine

Pneumococcus Vaccine

Rabies Vaccine-Human (Semple Method)

Smallpox Vaccine

Staphylococcus Vaccine

Tetanus Antitoxin (Concentrated)

Typhoid-Paratyphoid Mixed Vaccine

Typhoid Vaccine

Antistreptococcic Serum

Typhoid-Paratyphoid A Vaccine

Parke, Davis & Co.

Scarlet Fever Streptococcus Toxin for Preventive Immunization-P. D. & Co.

E. R. Squibb & Sons

Sulpharsphenamine-Squibb, 0.9 Gm., Ampoules

Tablets Ephedrine Hydrochloride-Squibb, $\frac{3}{8}$ grain

Tablets Ephedrine Hydrochloride-Squibb, $\frac{3}{4}$ grain

Arlington Chemical Co.

Western Water Hemp Pollen Extract-Arlco

Spiny Amaranth Pollen Extract-Arlco

E. Billhuber, Inc.

Metrazol

Metrazol Ampoules, 1 cc.

Metrazol Tablets

The Gilliland Laboratories, Inc.

Rabies Vaccine-Gilliland (Semple Method)

H. A. Metz Laboratories, Inc.

Salyrgan

Ampoules Salyrgan Solution, 1 cc.

Ampoules Salyrgan Solution, 2 cc.

E. R. Squibb & Sons

Antipneumococcic Serum, Type I, 50 cc. gravity container

Antipneumococcic Serum, Type I, 50 cc. gravity container

Squibb's Mint-Flavored Cod Liver Oil

The Committee on Scientific Exhibits for the Portland meeting of the American Medical Association is inviting Fellows to send in their applications for space and give description of the exhibit. Applications must be received before April 1. The dates of the Portland meeting are July 8-12. From the interest already manifest in the coming exhibit it is apparent that all available space will be assigned long before the

session opens. The amount of available space is somewhat less than that occupied by the Scientific Exhibit at the Minneapolis session and for that reason large blocks of space cannot be assigned to individual Fellows. The Scientific Exhibit will be located in the Portland Public Administration Building which will also house the Registration Bureau, the Technical Exhibit, and several sections of the Scientific Assembly.

Motion pictures of an operation on the heart were shown by Dr. Duff Allen, Associate Professor of Surgery in Washington University, December 27, 1928, at a convention of Phi Beta Pi, national medical fraternity, in St. Louis. The operation was performed by Dr. Allen with the aid of the cardioscope in 1924 and was the third successful heart operation of that type in medical history. It was the slitting of tissue uniting the mitral valves. The instrument, a tube equipped with a lens and a movable knife, was inserted through the appendage on the left auricle. The auricular appendage was clamped and the end cut off. With the instrument inserted the surgeon may look into the heart and expose the cutting edge of the knife by turning it inside the tube. On account of the low pressure in the auricle there is very little danger from the loss of blood. Formerly this operation was limited to two and one-half minutes. The cardioscope permits a thirty-minute operation, Dr. Allen said, without excessive danger to the patient.

The session, where lectures were delivered also by Drs. Louis H. Behrens and Fred W. Bailey, was interesting not only for the illuminative report on this rare heart operation, but also for the demonstration of the use of motion pictures in disseminating new methods in surgery. This new method of communicating the innovations of the masters in the great medical centers to the surgeons of the world promises much for the future.

The death of Dr. Joseph M. Davis, Thomasville, Missouri, leaves a community of prosperous farmers without a physician. Thomasville is a town of 100, in Oregon County, not far from the Arkansas border, with no physician nearer than twelve miles. It is in a very beautiful valley where hunting and fishing are the delight of nimrods and hunters, and the people "treat the Doctor like he was a king." Any member desiring to know more about this community may address Dr. P. D. Gum, West Plains, Mo., or Mr. Charles Gum, Thomasville, Mo.

A gift of \$150,000 was presented to the Jewish Hospital, St. Louis, by Mr. and Mrs. Mark C. Steinberg for the construction of a building for the care of chronic invalids. The new structure will be erected near the main hospital building and will be the third auxiliary building of the group under construction this year through donations from individual friends of the institution. The new building will be dedicated as a memorial to Mrs. Steinberg's father, the late David Eiseman, and will be known as the David Eiseman Hospital for Chronic Invalids and Convalescents.

A collection of 800 rare medical books was presented to the St. Louis Medical Society by Dr. James Moores Ball, St. Louis, at the annual meeting of the Society held January 8. The collection is valued at \$10,000 and includes many texts printed in the fifteenth and sixteenth centuries. The history of medicine from the days of Vesalius up through the period when Dr. William Beaumont published his revolutionary work on the physiology of digestion is represented in this collection. This donation by Dr. Ball is one of the most extensive collections ever given to the library of the St. Louis Medical Society, and brings its total number of volumes to twenty-six thousand.

Dr. Joseph Erlanger, St. Louis, Professor of Physiology, Washington University Medical School, has been appointed a member of the National Committee on Development of the American Philosophical Society, under whose auspices an "intellectual stock taking," international in scope, is to be made.

The committee, composed of forty-two learned men, will make a survey of the intellectual situation with a view to formulating "a future program of service to all branches of learning."

It will endeavor to answer one general question and three secondary questions, as follows: What, today, is the world's intellectual situation? Is there a drifting apart of the purely scientific interest and the humanistic interests? Is there a loss of perspective and of grasp of great principles by reason of specialization in education and in thought? How can these interests and these branches of individualistic learning be coordinated into one program with one common purpose, the promotion of all useful knowledge?

Dr. Maxwell Fineberg has become associated with Dr. Max A. Goldstein in the practice of otolaryngology at 3858 Westminster Place, St. Louis.

The American Spring Assemblies of the Inter-State Post Graduate Medical Association of North America will be held April 15 to May 9, 1929, in various cities in the United States. The Assemblies will open at Rochester, April 15, 1929, with a two-day scientific and clinical program under the direction of the teaching staff of the Minnesota Graduate School of Medicine (Mayo Clinic). Subsequent clinics will be held at Chicago, Cleveland, Boston, New Haven, New York, Philadelphia, Baltimore, and Washington, D. C. The Assemblies are open to physicians who are in good standing in their state and county societies, members of their families and friends. The clinics and scientific programs will cover all the different branches of medical science.

The 1929 Foreign Assemblies in Europe are scheduled for May 25 to July 18, 1929. Clinical sessions will be held in London, Glasgow, Edinburgh, Stockholm, Upsala, Lund, Copenhagen, Hamburg, Berlin, Frankfurt, and Paris. For complete information and registration for the Assemblies, address, Dr. W. B. Peck, Managing-Editor, Freeport, Illinois.

The North Side Branch of the Chicago Medical Society extends a cordial invitation to members of our Association to attend the meeting in Chicago, February 21.

The third Albert J. Ochsner Memorial Lecture will be given by Dr. George W. Crile, Cleveland, at the Germania Club, Germania place and Clark street, Chicago. This lecture will be preceded by a banquet in honor of Dr. Malcolm LaSalle Harris, president-elect, and Drs. Frank Billings, Arthur Dean Bevan and William Allen Pusey, ex-presidents of the American Medical Association of Chicago. The president, Dr. William S. Thayer, members of the Board of Trustees and other officers of the American Medical Association have accepted invitations to these events. For reservations communicate with Miss Wolff, 25 East Washington street, Chicago.

Examinations of candidates for assistant surgeon in the Regular Corps of the U. S. Public Health Service will be held at Washington, D. C., Chicago, New Orleans, and San Francisco, February 4, 1929. Candidates must be at least twenty-three years old and not over thirty-two years of age. They must be graduates of a reputable medical college and have one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers and undergo a thorough physical examination. For complete information or permission to take this examination, address the Surgeon-General, U. S. Public Health Service, Washington, D. C.

At the annual meeting of the State Board of Health held in Jefferson City, Wednesday, January 2, 1929, Dr. H. L. Kerr, Crane, was elected president to succeed Dr. W. A. Clark, Jefferson City. Dr. H. S. Gove, Linn, was elected vice president. Dr. James Stewart, Jefferson City, was reelected secretary and state health commissioner.

Dr. E. W. Cavaness, health director of Kansas City during the past three years, resigned the position on February 7. Dr. Porter E. Williams, who has been superintendent of the General Hospital at Kansas City for several years, was appointed to succeed Dr. Cavaness as health director.

The Frisco System Medical Association held its Twenty-Seventh Annual Meeting at the San Carlos Hotel, Pensacola, Florida, October 22 and 23, 1928. Among those from Missouri who took part in the program, with the titles of their papers, were: Dr. W. H. Breuer, St. James, "Goiter as Viewed by the Country Doctor"; Dr. W. C. Cheek, Springfield, "The Handling of Eye Injuries"; Dr. Sinclair Luton, St. Louis, "The Diagnosis of Chronic Heart Disease," discussed by Dr. T. W. Cotton, Van Buren; Dr. Ellis Fischel, St. Louis, "The Treatment of Carcinoma from Surgeons' Viewpoint," discussed by Dr. Jabez N. Jackson, Kansas City; Dr. J. Ellis Jennings, St. Louis, "A Doctor's Hobby"; Dr. Thomas G. Orr, Kansas City, "Intestinal Obstruction, Experimental and Clinical." Dr. George W. Hogeboom, Springfield, opened the discussion on "Traumatic Lesions of the Urinary Organs" by Dr. Russell Hennessey, Memphis.

The Chi Zeta Chi medical fraternity held its Seventeenth Biannual Convention at the Coronado Hotel, St. Louis, December 28, 29, 30, 1928. The convention concluded the twenty-fifth jubilee year of the Fraternity which was organized at the University of Georgia School of Medicine, Augusta, October 14, 1903. Chi Zeta Chi has purposely remained an exclusive Southern medical fraternity, having all of its sixteen active chapters in medical schools south of Philadelphia and St. Louis. The St. Louis chapters are Xi Chapter at St. Louis University and Omicron Chapter at Washington University. The St. Louis Alumni Chapter includes most of the ninety-two alumni practicing in St. Louis. Fourteen chapter houses are maintained for the purpose of providing proper social entertainment and economical living conditions for 430 medical students. The Fraternity maintains the *Chi Zeta Chi Medical Record*, now in its sixteenth volume, a periodi-

cal partly devoted to publishing elaborate articles on history and the fine arts as related to medicine.

The two most important enactments of the convention held in St. Louis consisted in the authorization of a program to extend the Fraternity in the North, East and West, and the establishment of a centralized office in the Lister Building, St. Louis. Dr. Thomas Noxon Toomey, St. Louis, succeeded Dr. Turner S. Shelton, Richmond, Virginia, as the Supreme Eminent Master. Dr. Albert W. Metcalf, Jr., Denver, was reelected Supreme Bursar. The other officers are: Dr. W. Whatley Battey, Augusta, Supreme Deputy Master; Dr. Richard Paddock, St. Louis, Supreme Historian (National Secretary); and Dr. Octavio Garcia, St. Louis, Editor-in-Chief and Custodian of Records. Dr. Sidney Saurin Evans, Memphis, is the Supreme Eminent Master-Elect. The next convention will be held at Memphis, in December, 1930.

Travelers who become ill on the Continent find it difficult to get in touch with an American or English physician. With few exceptions, hotels refuse to get the name of a physician of the traveler's nationality and attempt to have him employ the hotel physician. That, needless to say, is not always satisfactory. The Continental Anglo-American Medical Society was organized in 1885 to overcome this boycott. For many years it has published a list of English and American physicians practicing in Europe and Northern Africa, so that any physician may advise his patients before they depart on tour where to find a physician who can understand them and give his directions in a language they understand. This list of English speaking physicians may be obtained by anyone applying to the secretary, Dr. B. Sherwood-Dunn, 54 Boulevard Victor Hugo, Nice, France.

Dr. Albert Brechet, director of L'Institute d'Anatomie of Brussels, visited in St. Louis last month with Madame Brechet and lectured on embryology January 4 and 5 at Washington University. The famous embryologist is on a four-month tour of American medical centers as exchange professor, under the Educational Foundation of the Committee for Relief in Belgium. Dr. Brechet was deeply impressed by the close relation between research and treatment as maintained by the great teaching hospitals of the United States. "Every hospital patient seems to have the advantage of scientific research laboratories," he remarked. "In Europe research is carried on separately and more as a problem in pure science. The individual

patient in hospitals does not receive its immediate benefit. Since the war we do not have wealthy patrons, as in America, to endow hospitals and build laboratories. It takes money to conduct research and therein America has a great advantage in medical work."

The Belgian anatomist delivered addresses on "Heredity as an Embryological Process" and on "The Organizers and their Behavior in the Development of the Egg" at Washington University School of Medicine and Redstock Hall. He discussed indications, developed in his own studies, of factors for determining heredity besides the chromosomes. He reported on experiments wherein such factors had been studied by the removal of the nucleus from a germ cell.

Mme. Brechet, who acted as interpreter for her husband, related that, due to the new conception conveyed by American nurses in the World War, Belgium in the last ten years had made great strides in social service and in public health nursing. Dr. and Mme. Brechet visited Yale, the University of Oregon, and Leland Stanford last fall. From St. Louis they departed to study the important schools of the East.

An extensive postgraduate course on "Improvements in Infantile Therapeutics," will be held April 10 to April 20, 1929, in the Children's Clinic of the Medical Academy at Düsseldorf, by the Central Committee for Medical Postgraduate Work in Prussia and the Association for the care of Suckling Babies and Welfare Work. The first course of this kind which took place last year was a great success, as the hearers are given a complete survey of all the improvements in the whole domain of infantile therapeutics. The detailed program can be obtained from the secretariat in Düsseldorf, Oststrasse 15.

Drs. Sinclair Luton and F. G. Pernoud, St. Louis, were guests of the Jackson County (Illinois) Medical Society at its annual meeting in Carbondale, Illinois, Thursday evening, December 20, 1928, to which members of the Union County (Illinois) Medical Society were also invited. Dr. Luton addressed the meeting on "Diseases of the Heart," and Dr. Pernoud spoke on "Carcinoma of the Breast."

A special Cardiac Committee of Jackson County Medical Society will operate under the auspices of the Health Conservation Association of Kansas City. Of this committee Dr. George H. Hoxie is the chairman, and Drs. Joseph E. Welker and Roy F. Mills are the other physician members. It is planned to

survey Kansas City's facilities for the prevention of heart disease and for the effective handling of established cardiac cases to the end that prophylactic knowledge may be generally disseminated, plans for the medical and social demands of ambulant cases devised and adequate hospitalization provided for cases needing hospital care.

The annual Hodgen Lecture given under the auspices of the St. Louis Surgical Society was delivered in the auditorium of the St. Louis Medical Society on January 15, 1929. The essayist was Dr. Barney Brooks, head of the department of surgery of Vanderbilt University Medical School, Nashville, who delivered an address on "Surgical Applications of Therapeutic Venous Obstruction." This lecture is given annually in honor of the memory of Dr. John T. Hodgen whose name is one of the priceless assets of St. Louis Medicine. Dr. Brooks, formerly connected with Washington University Medical School, St. Louis, has devoted a great deal of time and investigative thought to the subject he discussed and is exceptionally well qualified to speak on that topic.

OBITUARY

JOHN THOMAS LAREW, M.D.

Dr. John T. Larew, St. Louis, a graduate of Bellevue Hospital Medical College, New York City, 1875, died at his home January 4, 1929, of heart disease, aged 78.

Dr. Larew practiced his profession for fifty-four years and, like Dr. Tupper who died suddenly after making a sick call in the forty-eighth year of his practice, Dr. Larew passed to his reward in less than an hour after he had returned from a call. His length of service in the medical profession of St. Louis is probably exceeded by only one other physician, Dr. Norman B. Carson, now retired, whose medical life covers the extraordinary span of sixty-one years. Few can remember Dr. Larew's early years in medicine, and the men he taught at the old St. Louis College of Physicians and Surgeons before 1890, and later at Beaumont and at Marion-Sims, are now among the elders of the profession. For many years his ancient, square Ford coupe, much too small for his tall figure, was a glad sight for anxious families in all parts of the city and many towns of the county. He was a Kentuckian who upheld the finest traditions of the courtly and genuine old school. The gentleness of soul that became audible in his quiet voice, his grave kindness and his instant though reserved sympathy in-

spired the liking of his fellow physicians and something approaching reverence in his patients.

On March 9, 1851, Dr. Larew was born at Maysville, Kentucky. He "read medicine" there under Dr. Thomas E. Pickett, and attended Louisville Medical College for one year. After obtaining his degree in medicine in 1875, he interned for one year in the New York Charity Hospital, removing to St. Louis and entering general practice in 1876. In 1880 he became demonstrator of anatomy and minor surgery in the St. Louis College of Physicians and Surgeons, and in three years was made professor of anatomy. He became professor of anatomy and clinical surgery at Beaumont Hospital Medical College in 1894, remaining there until its consolidation with Marion-Sims College of Medicine in 1901. He was secretary of the Beaumont faculty for six years. He became a member of the St. Louis Medical Society soon after beginning practice in St. Louis and was made an Honor Member in 1923. He was a Fellow of the American Medical Association.

Funeral services for Dr. Larew were held January 7 from the residence to Bellefontaine Cemetery. He is survived by his widow, Mrs. Emma Van Nordstrand Larew. His was a figure, in the profession and among men, that will be remembered long and kindly.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.

Ralls County Medical Society, December 17, 1928.

Chariton County Medical Society, December 28, 1928.

Mercer County Medical Society, January 2, 1929.

THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of October 19, 1928

CARDIOSPASM.—By DR. P. H. OWENS.

There are two theories in regard to the cause of cardiospasm: (1) the sphincter at the lower end of the esophagus fails to relax because of reflex through the vagus nerve in such conditions, as syphilis, tuberculous mediastinal glands, ul-

cer or cancer of the stomach; (2) the cause is in pathological change of the sphincter proper involving Auerbach's plexus, such as inflammation or degeneration.

Symptoms are dysphagia and regurgitation of food. The condition is differentiated from cancer—the only other lesion likely to be confused with it—by its more sudden onset, slower loss of weight, absence of melena, and the smooth tapering X-ray shadow with little evidence of dilatation above the point of obstruction.

After attention to the primary cause, the cardiac sphincter should be dilated with bougies such as the olive-tipped bougie or the British mercury bougie.

PRESENTATION OF CASE

Man, aged 24. In 1926 complaint was epigastric burning at night and an hour after eating. Took cathartics every two days. Had jaundice with abdominal pain nine years ago. No free acid and 21 points of combined acid in gastric contents. X-ray failed to reveal evidence of peptic ulcer. Tentative diagnosis, duodenal ulcer. Several months later he began to belch up food after eating and lost weight. Stools contained no blood. X-ray again negative. He was given Tr. belladonna in xv q. 3 hrs. and managed to get along for six months. Then he had to go to the hospital for a short time. He has been dilated weekly since that time with a gain of ten pounds in weight.

DISCUSSION

DR. H. P. BOUGHNOU: Cardiospasm may occur without demonstrable lesion of the gastro-intestinal tract. However, an ulcer on the lesser curvature of the stomach near the cardiac end is one of the common causes. It may produce few symptoms and is not likely to be seen by the X-ray. The finding of no free hydrochloric acid in the stomach contents does not exclude ulcer unless noted on numerous occasions.

Cardiospasm may be the first symptom in carcinoma of the cardiac end of the stomach. I presented a case at St. Mary's Hospital in which the findings were characteristic of cardiospasm. The patient was dilated several times, no blood was seen on the tip of the dilator, and some time later this patient died with carcinoma of the cardiac end of the stomach.

I believe that in cardiospasm, just as in pylorus spasm, some definite lesion of the gastro-intestinal tract is present in the majority of cases.

Atropin in the treatment of cardiospasm is rather unsatisfactory. We use the Sippy esophageal dilator against 120 mm. of mercury pressure. Frequently one stretching is all a patient needs, but some patients require several.

DR. W. A. MYERS: I saw a patient with cardiospasm for seventeen years, relieved by dilatation, that finally showed advanced pulmonary tuberculosis. Some one has recently discussed cardiospasm, pylorospasm, Hirschprung's disease, and spasm of the sphincter muscle of the urinary bladder, excited by organic lesions or due to obscure lesions of the nervous mechanism. Perhaps an obscure cord or sympathetic nerve lesion may be responsible for such a case as the one presented by Dr. Owens.

DR. L. G. ALLEN: Differential points in the X-ray examination of cardiospasm and cancer are that in spasm the lower point is tapering instead of irregularly obstructed and the peristalsis is usually more vigorous above the lesion in cardiospasm.

DR. C. C. NESSELRODE: In connection with Dr. Myer's remarks, Dr. Hamer, at the Detroit meeting of the American Urological Society, reported cases of bed-wetting associated with spina bifida occulta, and suggested that the chronic irritation of the cord was the cause of the lack of control.

DR. P. H. OWENS, in closing: We seldom see cases of ordinary pylorospasm that go on for several years as has this case of cardiospasm. This patient may have gallstones and I expect to make further studies.

MYELOGENOUS LEUKEMIA; HODGKIN'S DISEASE.—By DR. L. G. ALLEN.

Case 1. A man 53 years old complained of aching pain in the upper left abdomen of three years' duration. He felt weak, had distress after eating, and passed several stools with bright red blood. X-ray showed the stomach displaced to the right and a mass recognized as the spleen extending to the right of the umbilicus and to a level below that of the iliac crests. Hemoglobin 68 per cent.; erythrocytes 4,432,000; leukocytes 211,000, of which 20 per cent. were myelocytes and myeloblasts. There were casts and albumen in the urine. The Wassermann was negative.

X-ray therapy.—35 per cent. SED. at 150 K.V. administered to the chest at weekly intervals. After thirty days the white count had fallen to 13,200. It gradually arose in five weeks to 50,000 and was again reduced by X-ray to 12,000. The spleen was not palpable six weeks after the beginning of X-ray therapy. With the white count under 30,000, the patient feels good and is able to work in a salvage shop.

Conclusion.—X-ray of the chest decreases the white cell count in myelogenous leukemia.

Case 2. A stone-mason, 41 years old, had a large mass removed from his left axilla and the wound drained for four months. A year later he developed severe pains in his back, nausea, vomiting, dizziness, fever as high as 103 degrees, and left supraclavicular swelling. The fever was intermittent and there was occasional diplopia and a loss of weight. Seven years after the appearance of the axillary mass, the supraclavicular tumor consisting of three distinct lymph glands was removed and showed a typical picture of Hodgkin's disease. Wassermann negative; erythrocytes 3,430,000; leukocytes 7,300, with no eosinophilia; no noteworthy urinary findings.

X-ray therapy was applied to the left shoulder. Immediately after one of these treatments he had an attack of vomiting, interpreted by the clinician as an X-ray reaction. Complete bilateral motor paralysis of the legs gradually developed with urinary and fecal incontinence and trophic sacral bed-sores. Sensation was correctly localized but there was formication below the hips. Spinal fluid cell count 6, negative colloidal gold curve.

Treatment.—Cord considered in two segments and 50 per cent. E. D. at 150 K. V. given at weekly intervals. In nine weeks he could walk with a cane and sphincter control was partially regained.

According to Ginsberg, Hodgkin's disease may involve any part of the body. In 30 cases there was 27 per cent. nervous involvement. In this case there may have been multiple invasion of the spinal cord.

DISCUSSION

DR. F. C. HELWIG: Dr. Allen's results are spec-

tacular. What is the basis of radiation of the chest for myelogenous leukemia with no evidence of thoracic glandular involvement? Because of the similarity of many blood conditions more than a simple examination is required now to make a diagnosis.

Whether Hodgkin's disease is a granuloma or neoplasm is still debatable. This patient had an afternoon fever, down in the morning. But the histologic picture was characteristic of Hodgkin's disease. The vertebral marrow is rich in blood-forming capacity and it is possible to consider primary Hodgkin's disease here.

DR. H. P. BOUGHNOU: This is the first case of cord involvement I have ever seen in Hodgkin's disease. In leukemia and Hodgkin's disease X-ray treatments as a rule first give good results, but later not so good. We have used Coley's serum in a few cases after X-ray treatments and seemed to get pretty good results. Occasionally a case of Hodgkin's disease will, a short time before death, change to the typical blood picture of lymphatic leukemia.

DR. P. H. OWENS: I believe X-ray treatment is the best treatment to date.

DR. W. A. MYERS: A case of Hodgkin's disease of mine had herpes zoster and later chicken-pox. Herpes is rare in Hodgkin's disease but common in chicken-pox. X-ray relieved the acute symptoms of Dr. Allen's case but cannot hardly be expected to cure the bladder symptoms in the presence of scar tissue in the cord.

DR. L. G. ALLEN, in closing: I had originally intended to present a classification of lymphoblastomata but gave it up as too long. There was no plan to limit radiation to the chest of the patient with leukemia, but his improvement was so marked that I continued. In general, the younger the patient and the younger the cell the more easily it is affected by the X-ray.

TUBERCULOUS NEPHRITIS; COMBINED TUBAL AND UTERINE PREGNANCY.—By C. C. NESSELRODE.

Case 1. Woman aged 36. Appendectomy six years ago and cholecystostomy one year later. Her biliary wound continued to drain, and cholecystectomy was performed within one year later. Two years ago she developed symptoms of left pyelitis and was treated by lavage. She left the hospital, to be readmitted in 1928 complaining of loss of weight, fever, dysuria and left lumbar pain radiating into the lower abdomen. Pelvic lavage again resorted to with no marked improvement. Operation decided on, and left kidney was found to be enlarged, its lower half riddled with abscesses. We found an aberrant renal artery at the lower pole over which the ureter was kinked, as is plainly suggested by the X-ray. The pelvis and lower calyces were dilated. The kidney was removed. The pathological report was tuberculosis.

If this was a hematogenous infection according to the generally accepted theory, we would expect more disseminated involvement of both kidneys. Here, only the half with interference in drainage was involved. No tuberculous focus was found in the patient's body elsewhere.

Case 2. Woman, aged 36, had sudden, sharp lower abdominal pain after having missed two monthly periods. Mass found at the left side of the uterus. Erythrocytes 3,150,000; hemoglobin 65 per cent.; leukocytes 21,000. Diagnosis, ruptured extra-uterine pregnancy.

At operation much blood and a 4 cm. fetus

were found in the peritoneal cavity. The left tube had been ruptured at its distal end. On the fourth postoperative day the patient had a uterine abortion and passed another 4 cm. fetus. There have been such cases of dual pregnancy reported but they are rare.

DISCUSSION

DR. M. J. OWENS: It is possible for tubal pregnancy to occur without missing a period but usually unsafe to make a diagnosis of ectopic pregnancy under such circumstances.

DR. T. H. ASCHMAN: In December, 1927, a patient of mine miscarried and delivered placental tissue. A mass remained, thought to be a large tender tube. At operation it was found to contain a fetus.

DR. F. C. HELWIG: Decidual tissue may be passed from the uterus and mistaken for placental tissue. In the case under discussion I examined the material and saw chorionic villi.

DR. L. G. ALLEN: Regarding the radiographic diagnosis of tuberculosis of the kidney, this is not the typical pyelogram which has been so graphically and voluminously described in the literature. This pyelogram to me suggests an infarct of the kidney with a lateral depression due to scars.

DR. NESSELRODE, in closing: The renal function tests were equally good but there was pus in the left ureteral urine while the right was clear.

Meeting of November 2, 1928

GOITER CLINIC.—By DR. CLAUDE HUNT.

Case 1. Girl aged 14; classical symptoms of exophthalmic goiter; septic tonsils. Before operation, basal metabolic rate plus 25; pulse 130; weight 83 pounds. After operation, B.M.R. plus 6, pulse 100; weight 100 pounds.

There are three types of thyroid disease in juveniles: (1) toxic adenoma, which is rare; (2) simple colloid goiter, which improves usually on iodine therapy; (3) cretinism, which responds poorly to thyroid medication as a rule.

Case 2. Woman, aged 35, had nodular right-sided goiter eighteen years. Entered the clinic in a critical condition with auricular fibrillation and marked passive congestion from heart failure. B.M.R. plus 47; after medical treatment dropped to plus 3. Thyroidectomy. Present B.M.R. minus 6. This patient's heart damage was due both to her goiter and to acute articular rheumatism suffered in childhood.

Case 3. Middle-aged woman with toxic goiter eighteen months. Sister also had goiter. Patient had comminuted fracture of her leg with slow healing. Later, removed goiter after B.M.R. had dropped from plus 65 to plus 41 and patient had gained 10 pounds in the hospital. B.M.R. at present is plus 16.

Case 4. Middle-aged woman who had goiter since birth of child twenty years ago. Before operation, pulse 130; B.M.R. plus 50; weight 112 pounds. After operation, slow pulse; weight 129 pounds.

Case 5. Woman who went from doctor to doctor unrelieved, with vague goiter symptoms for two years. Pulse rate 120; B.M.R. plus 40. After thyroidectomy, B.M.R. plus 29; gained 22 pounds in weight.

DISCUSSION

DR. A. M. GINSBERG: The internist now agrees with the surgeon in early operation of these

cases before there is much myocardial injury.

DR. H. P. BOUGHNOU: Some surgeons are still afraid to operate such bad heart cases, but Dr. Lahey even does a thyroidectomy with his patient propped up in bed when there is a bad heart. Digitalis increases the irritability of the heart and may induce fibrillation, while quinidin may prevent fibrillation when extrasystole is present.

DR. J. L. McDERMOTT: Some goiter cases with heart lesions are ideal for radium therapy. Advantages are that there is less psychic effect and less danger than in surgical procedures.

DR. DAMON WALTHALL: Juvenile goiter may occur as early as the sixth month. These cases should be operated.

DR. A. C. GRIFFITH: We should learn the earlier symptoms of hyperthyroidism and turn these cases over to the surgeon earlier.

DR. HUNT, in closing: The question of giving digitalis or quinidin is still under discussion. I give quinidin a few days prior to operation for fibrillation, heart failure, or a fast pulse. The time to operate depends upon the toxicity, the patient's response to rest and Lugol's solution, the steadiness of the pulse and the gain in weight. A toxic goiter usually subsides sufficiently in from one to two weeks.

TWO UNUSUAL MALIGNANT CONDITIONS.—By DR. J. L. McDERMOTT.

Case 1. Myxolipoma, a condition clinically malignant and morphologically benign in man aged 30. In 1918 he had a mild case of "flu." In 1927 he suffered injury to left chest with swelling and local pain at this point. The X-ray showed a large tumor apparently extending from the abdominal into the chest cavity, displacing the heart to the right. At operation the mass proved to be extraperitoneal and extrapleural.

Case 2. A middle-aged man developed a tumor the size of a hen's egg over the right antrum and had difficult breathing because of nasal discharge. The laryngologist thought it a sarcoma and gave a bad prognosis. After one application of radium the tumor disappeared within three weeks. Six months later there were nasal symptoms, right antral tenderness, and distinct exophthalmos, but the X-ray showed no definite reappearance of the tumor. Radiation was done for the exophthalmos and again a few months later for a mass behind the ear. Each time there was recession of symptoms. Finally the cervical, axillary, and inguinal glands enlarged. These were relieved by X-ray treatment given in light doses at short intervals. Severe pain occurred in the left humerus, both hips and the lumbar region; partially relieved by heavy X-ray dosage. Finally, pathological fractures appeared and the X-ray showed dissolution of bone in the humerus and right hip. Patient died.

DISCUSSION

DR. R. KORITSCHNER: Case 1 is the second of its kind I have ever seen. A diagnosis of pseudomyxolipoma was made on the semiliquid tissue exuding from the chest before operation. This tumor seems to have its origin retroperitoneally. The fat cells have undergone myxomatous degeneration. It is not malignant histologically but is dangerous clinically through pressure from enlargement.

The second case was diagnosed large round cell sarcoma after biopsy of the inguinal lymph gland. These cellular types of sarcoma are sometimes classified as carcinoma. They are not usually as malignant as the small cell type. In

this case the histologic picture and influence of X-ray suggested sarcoma.

DR. L. G. ALLEN: The problem presented is chiefly a pathological one. X-ray treatment of myxomatous is generally satisfactory. In regard to the second case, if it was originally malignant, after its recession from X-ray applications, how was the topography of the face preserved? Could it have been benign originally? It is noteworthy how all types of tumor under treatment soon become "radiation fast"—possibly because as the tumor grows older its cells become more highly differentiated from the original type.

DR. McDERMOTT, in closing: I treated the second case as Hodgkin's disease. The X-ray picture resembles one of metastatic carcinoma, but an osteolytic sarcoma might produce this much bone destruction.

FOLLOW UP STUDIES OF NEPHROSIS.—By DR. P. M. KRALL.

A nephrotic is one with symptoms of nephritis but without inflammation of the kidney. However, toxins are responsible for the change. Clinically, the blood pressure is always normal. There are two types: (1) Epstein's type with high blood cholesterol, and (2) the type with high chlorides and water. In neither type is there any appreciable increase in the nitrogenous elements of the blood nor the creatinin.

Case 1. Woman, 23 years of age. Uterus emptied at seven months because of albuminuria. Blood pressure 160/100; urinalysis, 4 G. albumen per liter and hyaline casts; N.P.N. 46; urea 22, uric acid 4, creatinin 3 mg. Patient, a questionable nephrotic, is now cured.

Case 2. Woman, aged 26, had Cesarean section at eight months because of edema. Edema of the ankles since the age of 17. Hematuria 4 years ago. Anemic; tonsils absent (surgically); heart apparently good; thrombosed hemorrhoidal veins. Urine contained albumen and casts but no blood. Phenolsulphonephthalein test 68 per cent. Blood pressure 150/80. Patient still has albuminuria and I believe she always will have it. The edema of the ankles is still present and I believe it to be extrarenal in origin.

Case 3. Man, aged 26, had, I believe, a nephritis which turned into nephrosis. His blood pressure was 160/100. He had two transfusions. Had marked polyserositis which has subsided. At present, blood chemistry is N.P.N. 316, uric acid 4.2, creatinin 1.8, CO₂ 39 and cholesterol 600. He excretes 500 cc. of urine in 24 hours and has only a little edema. This is probably the Epstein type.

Treatment of these cases is different from that of nephritis. We give alkalis, transfuse because of the change in the albumen-globulin ratio of the blood, permit meats, but prohibit salt and water.

DISCUSSION

DR. RUSSELL HADEN: Nephrosis is a general disease and nephritis a local one. Perhaps the reversal of the normal blood globulin-albumen ratio is partly due to loss of albumen in the urine. Such a reversal occurs with many infections however as a result of a bacterial intoxication.

DR. A. M. GINSBERG: The response of these patients to treatment justifies a classification recognizing nephrosis as a clinical entity. An intern once gave one of our patients ten grams of sodium chlorid for experimental purposes and the patient nearly died.

DR. H. R. WAHL: Nephrosis is characterized by a change in the epithelial elements of the kidney in particular, especially the convoluted tubules, probably from some obscure toxemia. The cells of the convoluted tubules represent the most highly differentiated structures of the kidney and therefore would show the most marked change from soluble toxins reaching all parts of the kidney by way of the blood stream. These soluble toxins do not injure the glomeruli as much as larger toxic bodies would, such as bacteria. When bacteria get into the blood stream they are stopped by the first capillaries which are in the glomeruli. Consequently, bacterial infections usually produce a glomerular lesion whereas toxic injury to the kidney involves mostly the convoluted tubules and does not show so much microscopically. Furthermore, it is well to remember that each kidney is said to have 2,000,000 units only one-fourth of which are absolutely necessary to carry on the essential function of the organ. Hence three-fourths of the kidney may be destroyed and yet adequate renal function remain. In such cases albumen and casts may be found in the urine without marked change in the blood chemistry. Whether a lesion in the kidney is diffuse or involves just a certain number of the units will often determine the relation between the anatomical changes and the functional disturbances.

DR. F. C. HELWIG: We reported a case considered an uncured nephrosis of the Epstein type, with high blood cholesterol and doubly-refractile urinary lipoids. There was no typical interstitial lipid cell infiltration. I believe that infection must be back of most of these cases.

DR. KRALL, in closing: These cases are generally considered constitutional rather than local renal disorders..

MALTA FEVER.—By DR. F. E. ANGLE.

I will show three of six cases in Kansas City in the past two years. The proper name is undulant fever. *Micrococcus melitensis* was formerly considered the causative organism; however, *Bacillus abortus* gives similar laboratory reactions. The outstanding symptoms are, persistent undulant fever of from three months' to two years' duration; peripheral neuritis; profuse perspiration; leukopenia with a relative lymphocytosis. The diagnosis rests chiefly on agglutination tests.

Case 1. A salesman, aged 44, who drank a great deal of milk. He had a fever of 102 degrees in May with slight chill. Diagnosis, "flu." Later he was confined to bed with generalized pains and chills at regular intervals. The spleen was not felt. Typhoid was ruled out, and at the same time a test with *bacillus abortus* antigen gave a positive reaction.

Case 2. Young girl who had hemoptysis and left school November, 1927, with chills, fever, a slow pulse and depression. B.M.R. minus 15. She denied contact with animals. She had been on a milk diet. Tuberculosis was ruled out. Diagnosed, undulant fever, July, 1928.

Case 3. Woman, aged 28, had a temperature ranging from 99 to 104 degrees. She had been on a milk diet but denied taking anything but pasteurized milk.

Treatment consists of vaccines. Vaccine consisted of five pathogenic strains of *bacillus abortus* of bovine origin and one strain of swine origin. Dosage $\frac{1}{4}$ to 1 cc. Excellent therapeutic results were obtained.

BUCHANAN COUNTY MEDICAL SOCIETY



HASBROUCK DELAMATER, M.D., St. Joseph
PRESIDENT, 1929

Dr. Hasbrouck DeLamater, St. Joseph, elected president of Buchanan County Medical Society for 1929, is a widely known public health official and author of "Mother Goose Village," a model of good health that aroused much interest at the American Public Health Association in St. Louis in 1925 and at the Mississippi Valley Tuberculosis Association in Chicago in 1926, demonstrating methods of caring for pretuberculosis children.

Born in 1870, Dr. DeLamater began the study of medicine as a private student of the late Professor Alfred L. Louis, New York City, in 1892. After attending courses in the University of New York and the University of Buffalo, he graduated in medicine from the University of Alabama School of Medicine in 1901. Six years later he was appointed chief medical inspector for the Kansas City Health Department and later, as assistant health commissioner, he reorganized the entire health department of Kansas City and established health supervision of the public schools. Under his direction the Little Mothers' League was organized among the eighth-grade girls in the public schools, he established milk stations with a physician and a nurse in charge, and opened municipal dental clinics for teaching oral hygiene and giving prophylactic dental treatment. In recognition of his services he was elected first vice president of the Missouri State Oral Hygiene Society. He held the position of assistant health commissioner of Kansas City until 1915 when the office was abolished for economic reasons. He then accepted the position of resident physician of the Children's Free Hospital in Detroit, where he gave special attention to tuberculosis among the school children.

He returned to Kansas City in 1915 and entered private practice, devoting himself to pediatrics, but in 1916 he was urged to take the position as full

time health officer and director of hygiene of the school district at St. Joseph, a dual position established by the city, it being the first of its kind in the United States. In 1920, he resigned the office at St. Joseph to accept a position as health director of Norfolk County, Virginia, but the school district of St. Joseph would not accept his resignation and he became full time director of hygiene at St. Joseph.

Dr. Delamater has been elected a delegate to numerous Congresses on hygiene and public health, including delegate to the World's Education Association, Geneva, Switzerland, in July, 1929.

Meeting of December 5, 1928

The Society met December 5, 1928, and elected the following officers for 1929: President, Dr. Hasbrouck DeLamater, St. Joseph; vice president, Dr. Milton S. Gray, St. Joseph; secretary, Dr. T. L. Howden, St. Joseph, reelected; treasurer, Dr. J. M. Bell, St. Joseph; censor, Dr. F. H. Spencer, St. Joseph (term expires, 1931); delegate, Dr. E. A. Gummig, St. Joseph (term expires, 1930); alternate, Dr. B. T. Quigley, St. Joseph. Dr. W. C. Proud, St. Joseph, was elected a member of the Auxiliary Committee on Public Policy of the State Association. On the board of trustees of the Permanent Home Trust Fund, the following were elected: Dr. Daniel Morton, St. Joseph (term expires, 1933); Dr. J. F. Owens, St. Joseph (term expires, 1932); Dr. W. T. Elam, St. Joseph (term expires, 1931); Dr. J. J. Banschach, St. Joseph (term expires, 1930); Dr. P. R. McGill, St. Joseph (term expires, 1929).

A resolution was made in the form of an amendment to our By-Laws that the local Society dues be \$10 per year instead of \$17 per year, final action to be taken after ten days notice to members.

Meeting of December 19, 1928

At the meeting it was voted that the annual dues of the Society be fixed at \$7.00 per year plus the per capita assessment of the State Association, making the total dues \$15.00 instead of \$13.00 as originally.

Dr. L. H. Fuson, St. Joseph, read a paper on the "Etiological Incidence of Organic Heart Disease." He reviewed over two thousand of his own cases in which some form of organic heart disease occurred, and illustrated his subject by tables and charts, the percentages of different disease groups in the production of the heart condition.

The paper was discussed by Drs. Charles Greenberg, W. T. Elam, W. Roger Moore, John M. Bell, T. L. Howden and E. M. Shores, St. Joseph.

T. L. HOWDEN, M.D., Secretary.

CAMDEN COUNTY MEDICAL SOCIETY

At the annual election of officers of Camden County Medical Society, the following were elected for 1929: President, Dr. George M. Moore, Linn Creek; vice president, Dr. E. G. Claiborne, Decaturville; secretary-treasurer, Dr. G. T. Myers, Macks Creek.

G. T. MYERS, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society reports the following officers elected for 1929: President, Dr. Arthur D. Knabb, Springfield; vice president, Dr. Robert Glynn, Springfield; secretary, Dr. J. Newton Wakeman, Springfield; treasurer, Dr. W. E. Handley, Springfield, reelected; delegate, Dr. P. F. Cole, Springfield (term expires, 1930); alternate, Dr. C. W. Russell, Springfield; censor, Dr. W. P. Patterson, Springfield (term expires, 1931).

The Society has enjoyed a very good year, the attendance has been average, and unusual interest has been shown in the work of the Society.

Dr. Robert Glynn, Springfield, who has served for nine years as secretary of the Society, read his report for 1928, as follows:

Report of Secretary

The officers of the Society were: President, Dr. H. A. Lowe, Springfield; vice president, Dr. A. D. Knabb, Springfield; secretary, Dr. Robt. Glynn, Springfield; treasurer, Dr. W. E. Handley, Springfield. Board of censors, Drs. W. P. Patterson, O. C. Horst, and R. F. Williams, Springfield. Delegate, Dr. J. W. Love, Springfield; alternate, Dr. T. O. Klingner, Springfield. Committee on Public Policy, Drs. J. W. Love, S. F. Freeman, and W. R. Beatie, Springfield. Program Committee, Drs. G. D. Callaway, W. A. Delzell, and J. E. Dewey, Springfield.

There have been ninety-seven members in good standing during the year 1928. Two members, Dr. C. E. Pierce, Republic, and Dr. J. W. Williams, Springfield, have been lost by death. We have four Honor Members, Drs. C. E. Fulton and J. L. Ormsbee, of Springfield, elected in 1927, and Drs. J. W. Williams and J. R. Boyd, of Springfield, elected during 1928. Three new members have been added to the rolls through election and transfer, while four have been lost through transfer and non-payment of dues. There were seventeen regular meetings exclusive of the annual banquet and the picnic. At the latter gathering the Society was entertained by the Women's Auxiliary.

The average attendance for the seventeen meetings has been 251/17 members per meeting. The record attendance is as follows: A. L. Anderson, 2; Finis Anderson, 5; Atherton, 2; M. J. Armstrong, 2; A. Armstrong, 0; Alder, 0; Bailey, 0; Beatie, 11; Barnes, 2; Busiek, 7; Box, 0; Boyd, 0; Burke, 4; Bruton, 5; Callaway, 9; Coffelt, 0; Coon, 7; Cheek, 8; Cox, 5; Crane, 6; Cowan, 0; Cole, 9; Camp, 6; Craig, 5; Delzell, 8; Dewey, 9; Dorrell, 0; Ellis, 4; Evans, 1; Edmonson, 6; Elkins, 1; Ferguson, 0; Fessenden, 6; Freeman, 5; Feller, 7; Fulbright, 0; Fuson, 0; Fulton, 0; Focht, 2; Gifford, 8; Glynn, 13; George, 0; Handley, 7; Henson, 11; R. W. Hogeboom, 0; G. W. Hogeboom, 4; Horst, 14; Huffman, 1; Hogg, 3; Helton, 3; H'Doubler, 6; E. F. James, 3; J. D. James, 3; Kerr, 2; Klingner, 8; A. D. Knabb, 10; H. F. Knabb, 0; Kelly, 2; LeCompte, 3; Lemmon, 2; Love, 11; Lowe, 12; Leslie, 5; Maples, 5; Morris, 4; Moore, 0; McHaffie, 0; Mason, 3; Meyer, 0; McCann, 7; Morrison, 1; Ormsbee, 0; Patterson, 10; Potter, 6; Ray, 13; Rienhoff, 2; Roseberry, 1; Russell, 5; Rinehart, 0; Rabenau, 0; Robertson, 5; Sherman, 2; Souter Smith, 2; Wallis Smith, 9; Wilbur Smith, 1; Stone, 9; Summers, 0; Sayers, 0; Silsby, 1; Tickle, 1; Thomas, 0; Turner, 0; Webb, 3; Wills, 6; R. F. Williams, 10; Jno. Williams, 6; Walsh, 5; Wakeman, 6; Windle, 4.

ROBERT GLYNN, M.D., Secretary.

HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met in the county court room at Clinton, December 19, 1928, with the following members present: Dr. W. E. Baggerly, La Due; Drs. F. M. Douglass, R. D. Haire, G. S. Walker and S. W. Woltzen, of Clinton. Drs. E. H. Skinner and J. V. Bell, of Kansas City, were present as guests of the Society. In the absence of the president, Dr. J. W. Galbreath, Ulrich, Dr. J. J. Russell, Deepwater, presided. The minutes

of the meeting of November 28, 1928, were read and approved.

Officers elected for 1929 are: President, Dr. J. J. Russell, Deepwater; vice president, Dr. R. J. Jennings, Windsor; secretary-treasurer, Dr. S. W. Woltzen, Clinton; delegate, Dr. R. D. Haire, Clinton; alternate, Dr. W. E. Baggerly, La Due.

Dr. J. V. Bell, Kansas City, read an instructive paper on "Pneumonia."

Dr. E. H. Skinner, Kansas City, gave an interesting talk on "Uterine Bleeding in a Woman Past Forty."

Both papers were discussed by the members present and a vote of thanks was tendered Drs. Skinner and Bell for the excellent program.

S. W. WOLTZEN, M.D., Secretary.

HOWELL-OREGON-TEXAS COUNTY MEDICAL SOCIETY

A call meeting of the Howell-Oregon-Texas County Medical Society was held at the Ellis Cafe, West Plains, December 28, 1928, at 7 p. m. An elegant quail dinner had been prepared and apparently was much enjoyed by all.

Notice of the meeting and statements of dues for the year 1929 were sent to all the members, but on account of so much "flu" prevailing in our midst the attendance was not as good as we had hoped for. Invitations were sent to Dr. Frank I. Ridge, Kansas City, President, and Dr. E. J. Goodwin, St. Louis, Secretary of the State Association; Drs. W. J. Wills and E. M. Fessenden, of Springfield, but none of them was able to attend. Dr. L. M. Edens, Cabool, vice president, presided. The following members were present: Drs. E. Claude Bohrer, P. D. Gum, A. H. Thornburgh, L. E. Toney, R. A. Sparks, of West Plains; Dr. L. M. Edens, Cabool; Dr. H. A. Thompson, Lanton; Dr. J. D. Black, South Fork; Dr. D. D. Cox, Pomona; Dr. J. R. Womack, Houston; Dr. Leslie Randall, Licking.

The secretary, Dr. P. D. Gum, West Plains, made a report of the year's work and, while our meetings have not been as well attended as they should have been, it was agreed that our efforts had not been altogether in vain and the hope was expressed that we show an improvement in 1929.

A committee consisting of Dr. J. L. Eblen, Alton; Drs. A. H. Thornburgh and P. D. Gum, of West Plains, was appointed to draft resolutions on the death of our beloved member and friend, Dr. Joseph Morrow Davis, whose death occurred at his home in Thomasville, November 6, 1928. The committee will report at our next meeting.

The following officers were elected for 1929: President, Dr. L. M. Edens, Cabool; vice president, Dr. Calvin Rhea, Thayer; secretary-treasurer, Dr. Leslie Randall, Licking.

It was decided to hold our next meeting at Houston, February 28, 1929, unless the president and secretary see fit to change the date.

P. D. GUM, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

Dr. E. D. Hatcher, who was elected president of the Jasper County Medical Society at the annual meeting in December, 1928, has been a member of the Missouri State Medical Association since his graduation in 1918. He was born at Floyd, Virginia, in 1883, and attended the public schools in that city until his family moved to Jacksonville, Illinois, in 1908, where he entered the Whipple Academy and received his diploma from that institu-



EPHRAIM D. HATCHER, M.D., Carthage
PRESIDENT, 1929

tion in 1912. Dr. Hatcher has been giving special attention to nervous and mental diseases ever since his graduation in medicine. He served an internship at the St. Louis City Sanitarium and was assistant physician at the State Hospital No. 1 at Fulton and No. 3 at Nevada. He began private practice at Carthage about 1922 and has continued to practice in that vicinity. He is a Fellow of the American Medical Association and a member of the Missouri-Kansas Neuro-Psychiatric Society and associate member of The National Committee for Mental Hygiene.

Meeting of November 20, 1928

The Society met in regular session at the Joplin Y. M. C. A. at 8 p. m. with President John L. Sims, Joplin, in the chair and the following members present: Drs. John W. Barson, L. C. Chenoweth, S. A. Grantham, Harry A. Leaming, Mary L. Mack, Roy E. Myers, John L. Sims and W. S. Loveland, of Joplin; O. L. Alberty, Carl Junction; Lloyd B. Clinton, E. D. Hatcher and E. J. McIntire, of Carthage; B. M. Henry, Alba; Jesse E. Douglass, Webb City. Visitors: Dr. Lee Baxter, Columbus, Kansas, and Dr. Claude R. Lowdermilk, Galena, Kansas.

The resolutions of respect for the late Dr. James I. Tyree, Joplin, were read by the chairman of the necrology committee, Dr. Lloyd B. Clinton, Carthage. It was moved, seconded and carried that the resolutions be adopted as read.

Dr. Lloyd B. Clinton, Carthage, reported a case, a male aged 57, of probable sarcoma of the chest wall showing involvement of the mediastinal glands of 4 months' duration, Wassermann negative; blood count negative. Inoperable.

Dr. B. M. Henry, Alba, presented a very original

and interesting paper on "Gastric and Duodenal Ulcer." He reviewed the literature on the subject which is very voluminous. He reported several cases and his experience with this condition throughout the years of his practice, especially the type found in children, which is more prevalent than most of us suspect. Dr. Henry took up the various forms of treatment, such as alkalies, lavage, etc. Complete mental and physical rest was stressed. This subject was discussed by Drs. H. A. Leaming, L. C. Chenoweth, E. J. McIntire and S. A. Grantham.

Meeting of November 27, 1928

The Society met in regular session at the Y. M. C. A., Joplin, at 8 p. m. Dr. Samuel H. Miller, Joplin, was appointed to act as president in the absence of Dr. John L. Sims, Joplin, president, and Dr. E. D. Hatcher, Carthage, vice president. Members present: Drs. L. C. Chenoweth, A. B. Clark, M. O. Coombs, C. C. Cummings, S. A. Grantham, W. S. Loveland, S. H. Miller, Roy E. Myers and H. L. Wilbur, of Joplin; Jesse E. Douglass, R. M. Stormont and W. W. Waggoner, of Webb City. Guests: Drs. P. W. Upshaw and Claude R. Lowdermilk, of Galena, Kansas; Dr. R. E. Duncan, Kansas City. The minutes of the meeting of November 20, 1928, were read and approved.

Dr. S. A. Grantham, Joplin, reported a case of fecal impaction of eight months' duration, in a very emaciated woman. While she was being changed in position on the operating table preparatory to removal of the impaction the femur was fractured. No other force than the usual procedure in lifting the patient to change her position was used, the fracture no doubt being due to the pathology of the bone.

Dr. L. C. Chenoweth, Joplin, reported a case of fecal impaction in an elderly man. The impaction was removed and the patient made a good recovery and lived for many years.

Dr. W. S. Loveland, Joplin, reported a case of fecal impaction in a child who made a good recovery after removal of the mass.

Dr. Loveland also presented a paper on tuberculosis, in which he discussed especially the juvenile type and the modes of prevention and infection. He reviewed the literature on the subject as to the number of children infected and the prognosis of these cases. He emphasized the importance of following closely the infections of childhood, especially influenza, in order that the cases may be diagnosed early. Dr. Loveland's paper was discussed by many of the members since it is of vital interest to those who are in general practice as well as those who are doing special work.

Dr. R. E. Duncan, Kansas City, told of a case of reported melitensis which later was proven to be a streptococci infection. He stressed the importance of being careful in cases showing an irregular temperature before a complete diagnosis is made.

Dr. C. C. Cummings, Joplin, reported a case which presented many symptoms of typhoid fever but the Widal test was persistently negative.

Dr. L. C. Chenoweth, Joplin, reported a case with history of acute pain in the epigastric region on October 27, 1928. Recent examination showed the pain still present and the whole abdomen tender. The case was probably duodenal ulcer, according to the opinion of some of the members present.

On motion, seconded and carried, the banquet meeting scheduled for December 11, 1928, was deferred to one of our regular meetings in the early part of January, 1929.

Meeting of December 4, 1928

The Society met in regular session at the Joplin Y. M. C. A. at 8 p. m. with the president, Dr. John L. Sims, Joplin, in the chair and the following members present: Drs. J. W. Barson, L. C. Chenoweth, M. O. Coombs, S. A. Grantham, Robt. M. James, S. H. Miller, R. E. Myers, Robt. L. Neff, Chas. T. Reid, John L. Sims and H. L. Wilbur, of Joplin; Dr. E. D. Hatcher, Carthage; Riley M. Stormont and W. W. Waggoner, of Webb City. Guests: Dr. W. B. York, Sarcoxie; Dr. Leroy W. Baxter, Columbus, Kansas. The minutes of the meeting of November 27, 1928, were read and approved.

Dr. S. A. Grantham, Joplin, continued the report of the case he presented at the last meeting.

Dr. E. D. Hatcher, Carthage, the essayist of the evening, read a paper on "Our Biologically Unfit, and Heredity." He reviewed the history of mankind in relation to his subject and covered the whole of man's struggle for civilization in a very interesting, instructive manner. He showed the influence which heredity plays in an individual's behavior. This was an exceptional paper and was discussed by Drs. S. A. Grantham, L. C. Chenoweth, J. W. Barson, M. O. Coombs, S. H. Miller and John L. Sims, of Joplin.

Meeting of December 11, 1928

The Society met at the Joplin Y. M. C. A. at 8 p. m. with President John L. Sims, Joplin, in the chair and the following members present: Drs. L. C. Chenoweth, M. O. Coombs, R. M. James, W. S. Loveland, S. H. Miller, Roy E. Myers, H. C. Powers, John L. Sims, R. A. Thornton and H. L. Wilbur, of Joplin; Drs. E. D. Hatcher and E. J. McIntire, of Carthage; Dr. Jesse E. Douglass, Webb City. The minutes of the meeting of December 4, 1928, were read and approved. No papers or case reports were called at this meeting. As previously announced, all members having been notified by letter, this was the annual meeting for the election of officers.

In a call for nominations for president, the following were nominated: Drs. C. T. Reid, R. E. Myers, E. D. Hatcher, S. H. Miller, R. A. Thornton and John L. Sims. The result of the third ballot was Dr. C. T. Reid, 3; Dr. E. D. Hatcher, 8 and Dr. Hatcher was declared elected president.

For vice president the following were nominated: Drs. R. A. Thornton, Jesse E. Douglass, R. E. Myers, W. S. Loveland, C. T. Reid, M. O. Coombs and E. D. James. On the third ballot Dr. R. E. Myers received 7 votes and Dr. R. A. Thornton received 4 votes. Dr. Myers was declared elected vice president.

The following were nominated for secretary: Drs. H. L. Wilbur, M. O. Coombs, John L. Sims, W. S. Loveland and E. R. Hornback. The third ballot resulted as follows: Dr. H. L. Wilbur, 8; Dr. M. O. Coombs, 1; Dr. J. L. Sims, 1; Dr. W. S. Loveland, 1; Dr. E. R. Hornback, 1. Dr. Wilbur was declared elected secretary.

It was moved, seconded and carried, that the rules be suspended and the secretary cast the vote for Dr. M. C. Shelton, Joplin, as treasurer.

The nominations for censor to succeed Dr. Lloyd B. Clinton, Carthage, whose term expired, were: Drs. J. E. Douglass, H. A. LaForce, R. L. Neff, E. J. McIntire and L. C. Chenoweth. On the third ballot, Dr. Jesse E. Douglass, 8; Dr. R. L. Neff, 3. Dr. Douglass was declared elected censor.

Dr. L. C. Chenoweth, Joplin, moved that the first regular meeting of 1929 be postponed until January 8, 1929, as the first meeting of the new year

would come on January 1. Motion seconded by Dr. R. A. Thornton, Joplin, and carried.

Meeting of December 18, 1928

The Society met at the Joplin Y. M. C. A. at 8 p. m. with President John L. Sims, Joplin, in the chair. Members present: Drs. Clyde M. Balsley, L. C. Chenoweth, Allen B. Clark, W. E. Craig, Moses B. Harutun, S. H. Miller, R. E. Myers and John L. Sims, of Joplin; Dr. E. D. Hatcher, Carthage; Dr. Jesse E. Douglass, Webb City. Visitor: Dr. R. E. Duncan, Kansas City.

Dr. Jesse E. Douglass, Webb City, presented a paper on "Diagnosis of Tuberculosis" as had been announced in the program. He first presented a short summary of the procedure which was simple in developing a diagnosis of tuberculosis. The classification was history, inspection, palpation, auscultation, the latter including rales, which were divided into fine, medium and coarse rales. Also under this was mentioned the whispered voice sounds, breathing sounds, which were divided into vesicular, bronchial-vesicular, and bronchial. The importance of the findings, hemoptysis, pleuritic effusion, medium rales, positive X-ray, and positive laboratory findings or acid-fast bacilli, was emphasized. The essayist regarded any two of these findings positive as sufficient evidence to make a diagnosis of tuberculosis. The paper was a very instructive and concise resume of the subject which is a very broad one to cover in one evening; however the compliments were as many as there were members present.

Dr. Douglass' paper was discussed by Drs. A. B. Clark, Clyde M. Balsley, E. D. Hatcher, L. C. Chenoweth, John L. Sims, R. E. Duncan, R. E. Myers and S. H. Miller.

ROY E. MYERS, M.D., Secretary.

LAWRENCE-STONE COUNTY MEDICAL SOCIETY

At the meeting of the Lawrence-Stone County Medical Society held at Aurora, December 4, 1928, the following officers were elected for 1929: President, Dr. T. D. Miller, Aurora; vice president, Dr. W. M. Holmes, Marionville; secretary-treasurer, Dr. R. D. Cowan, Aurora; censor, Dr. F. S. Stevenson, Aurora; delegate, Dr. W. J. Bryan, Mount Vernon; alternate, Dr. R. D. Cowan, Aurora.

Interesting papers were read by Drs. J. W. Love, W. R. Beatie and Otto C. Horst, of Springfield.

The next meeting of the Society will be held March 5, 1929.

R. D. COWAN, M.D., Secretary.

LINN COUNTY MEDICAL SOCIETY

The Linn County Medical Society met at the B. B. Putman Memorial Hospital, Marceline, December 17, 1928, with a fairly good attendance.

The following officers were elected for 1929: President, Dr. W. W. Ellis, Marceline; vice president, Dr. J. H. Lucas, Brookfield; secretary, Dr. Ola Putman, Marceline; treasurer, Dr. F. W. Burke, Laclede.

Dr. W. W. Ellis, Marceline, presented a paper on "Diabetes," giving his personal experience with the disease during the past fifteen years.

Dues were paid by all members present after a vigorous protest against the amount going to the State Association. It was the unanimous opinion of the members that the amount of State dues was in excess of benefit derived, that it has a decided tendency to keep members out of the local Society,

and that the dues should be reduced at the next State Meeting.

A Woman's Auxiliary to the Linn County Medical Society was organized the same evening at the home of Mrs. Ola Putman, Marceline.

OLA PUTMAN, M.D., Secretary.

NINTH COUNCILOR DISTRICT MEETING

The annual meeting of the Ninth Councilor District was held in the Audrain County Hospital at Mexico, November 22, 1928, with the president, Dr. Fred Griffin, Mexico, in the chair. The meeting began at two o'clock in the afternoon, and about forty members gathered to hear the speakers.

The afternoon program consisted of the following papers:

"Heart in Relation to Thyroid Disease," Dr. Alphonse McMahon, St. Louis.

"Prolonged and Difficult Labor," Dr. W. C. Gayler, St. Louis.

"Industrial Eye Injuries," Dr. Emmett P. North, St. Louis.

The discussion on these papers was very interesting.

After the session at the hospital, the members adjourned to the Hoxsey Hotel where an elaborate dinner had been prepared for the occasion. About fifty members and guests were present. Dr. Fred Griffin, Mexico, presided as toastmaster. Talks were made by Drs. M. Pinson Neal, Columbia; A. R. McComas, Sturgeon; Alphonse McMahon, St. Louis; J. G. Moore, Mexico; R. N. Crews, Fulton; T. H. Wilcoxon, Bowling Green; E. J. Goodwin, St. Louis. After the dinner two interesting papers were read and illustrated with lantern slides. These were: "Diagnosis and Treatment of Cancer," Dr. W. E. Leighton, St. Louis.

"Fracture Problems," Dr. M. L. Klinefelter, St. Louis.

The meeting adjourned about 10:45 p. m. and everyone felt that he had profited much from the program and the association with fellow members.

NODAWAY COUNTY MEDICAL SOCIETY

After the monthly staff meeting of the Sisters of St. Francis Hospital, Maryville, adjourned, the Nodaway County Medical Society met in regular session in the hospital's first floor lecture room at 7:45 p. m. Friday, December 14, 1928. The president, Dr. H. S. Maxwell,* Hopkins, presided. Roll call showed the following members present: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, H. S. Dowell, C. P. Fryer, C. V. Martin, R. C. Person, F. M. Ryan, J. H. Ryan, F. C. Wallis and W. M. Wallis, Jr., of Maryville; Dr. C. D. Humbert, Barnard; Dr. H. S. Maxwell, Hopkins.

The program for the evening was to have included papers on "Differential Diagnosis in Acute Abdominal Diseases," by Dr. J. G. Montgomery, Kansas City, and "The Anemias," by Dr. Donald R. Black, Kansas City, through the courtesy of the Kansas City Southwest Clinical Society, but the secretary read a telegram from Dr. Montgomery expressing their regrets at being unable to attend because of impassable roads. Dr. C. T. Bell, Maryville, moved that the Kansas City speakers be invited to present their program to the Society at its regular meeting in January, 1929. Dr. W. M. Wallis, Jr., Maryville, seconded the motion, which was carried.

In accordance with the motion of Dr. W. M. Wal-

* Dr. Maxwell died January 5, 1929.

lis, Jr., at the November meeting, the secretary, Dr. C. D. Humbert, Maryville, read the following prepared resolutions:

WHEREAS, It is the opinion of the Nodaway County Medical Society that the condition as stated in the resolutions adopted by the Society on October 12, 1928, concerning a member of the faculty of the Northwest Missouri State Teachers College who had been masquerading as a physician, are all admitted and affirmed to exist, and

WHEREAS, The subsequent action in tabling and withdrawing these resolutions must be explained, therefore be it

Resolved, That a majority of the voting members of the Nodaway County Medical Society feel that the last paragraph of those resolutions as originally adopted has been adopted too hastily, and be it further

Resolved, That the physicians of Maryville regard the school in question as an asset to their community, and, out of personal friendship for Dr. Jesse Miller, President of the Board of Regents of the Northwest Missouri State Teachers College, and out of a fear that the exposures in those resolutions would be detrimental to the school's standing and injurious to the city of Maryville, they feel that those resolutions should not have been given or sent to the authorities or to the public, and be it further

Resolved, That those resolutions should have no publicity other than a record in the Society's archives, and shall be published only in the Society's official proceedings, and be it further

Resolved, That a copy of these resolutions be sent to each of the persons who received a copy of the resolutions as of October 12, 1928.

Dr. R. C. Person, Maryville, moved that the resolutions be adopted as read. The motion was seconded by Dr. C. T. Bell, Maryville, and carried.

On invitation of the President, Dr. C. P. Fryer, Maryville, county health officer of Nodaway County, gave a verbal report of the chest clinic held during the afternoon by the Nodaway County Tuberculosis Association, at the County Health Bureau. The Tuberculosis Association had appointed Dr. Sam H. Snider, Kansas City, to assist in examination of the fourteen cases of pulmonary tuberculosis. One or two arrested cases were found in the persons examined. Dr. Fryer made a plea that physicians give more attention to reporting suspected cases of tuberculosis. The county's death certificates last year showed nine fatal cases of this disease and only four of these had been previously reported to the public health authorities. The speaker expressed the opinion that there are at least ninety cases of tuberculosis in the county now. He stated that the Tuberculosis Association has funds for the follow-up of these cases and money with which to buy sputum cups, etc., for patients. He further stated, in view of the current epidemic, that influenza is a reportable disease but requires no placard and is not quarantinable. The subject of influenza was discussed by Drs. L. E. Dean, W. M. Wallis, Jr., H. S. Maxwell and F. M. Ryan.

The Society then proceeded to elect officers for 1929: Dr. W. M. Wallis, Jr. nominated Dr. H. S. Maxwell, Hopkins, as president. Dr. C. T. Bell moved that the nominations be closed and that Dr. Maxwell be elected by acclamation. Dr. H. S. Dowell seconded the motion. The motion carried and Dr. Maxwell was declared elected president by unanimous vote.

Dr. R. C. Person nominated Dr. L. E. Dean, Maryville, as a candidate for vice president. Dr. C. T. Bell moved that the nominations be closed and that Dr. Dean be elected by acclamation. Dr. H. S. Dowell seconded the motion, which carried, and Dr. Dean was declared elected vice president for 1929.

Dr. C. T. Bell nominated Dr. Charles D. Humbert, Barnard, to succeed himself for the office of secretary-treasurer. Dr. R. C. Person moved that the nominations be closed and that Dr. Humbert be elected by acclamation. Dr. H. S. Dowell seconded the motion, which carried, and Dr. Humbert was declared elected secretary-treasurer for 1929.

Dr. W. M. Wallis, Jr., nominated Dr. Charles D. Humbert, Barnard, to succeed himself as delegate

to the annual meeting of the State Association. Dr. C. V. Martin moved that the nominations be closed and that Dr. Humbert be elected by acclamation. Dr. H. S. Dowell seconded the motion, which carried, and Dr. Humbert was declared elected delegate for 1929.

Dr. F. M. Ryan nominated Dr. C. P. Fryer, Maryville, for the office of alternate delegate. Dr. R. C. Person moved that the nominations be closed and that Dr. Fryer be elected by acclamation. Dr. H. S. Dowell seconded the motion, which carried, and Dr. Fryer was declared alternate delegate for 1929.

Dr. F. C. Wallis, Maryville, introduced the following resolutions which are to lie over until the January meeting when action will be taken upon them, as the By-Laws require:

Resolved, That Section I, of Chapter V, of the By-Laws of the Nodaway County Medical Society be hereby altered to read as follows: The annual dues of each member of this Society shall be twelve dollars, to be paid on or before the annual meeting for the election of officers, in each year. Four dollars of such dues shall be used to defray current expenses of the Society, and eight dollars shall be forwarded by the secretary with his annual report, to the Secretary of the Missouri State Medical Association. Any member who shall fail to pay his dues on or before the date named shall be held as suspended in this Society and in the Missouri State Medical Association, and his name shall be placed on the list of non-affiliated physicians in the report to the State Association for that year, and shall so remain until such disability is removed.

Dr. C. V. Martin, Maryville, introduced the following resolution which is also to be held over until the next regular meeting of the Society:

Resolved, That the following amendment, to be known as Section II, of Chapter V, be added to the By-Laws of the Nodaway County Medical Society.

Members of this Society who shall become incapacitated from practice by reason of illness or the infirmities of age, may, by a vote of the majority of the members present at a regular meeting of the Society, be listed as Honor Members of this Society and shall not be required to pay the annual dues to the Society, provided these members pay their regular annual dues to the Missouri State Medical Association.

The meeting adjourned at 8:40 p. m.

CHAS. D. HUMBERT, M.D., Secretary.

PIKE COUNTY MEDICAL SOCIETY

The Pike County Medical Society met at the Pike County Hospital, December 3, 1928, at 7:30 p. m. with nine members present. The following officers were elected for 1929: President, Dr. J. W. Crewdson, Louisiana; first vice president, Dr. E. M. Bartlett, Clarksville; second vice president, Dr. T. H. Wilcoxon, Bowling Green; secretary-treasurer, Dr. E. A. Cunningham, Louisiana; delegate, T. Guy Hetherlin, Louisiana; board of censors, Dr. C. D. Scott, Louisiana. Following the transaction of routine business, Dr. T. Guy Hetherlin, Louisiana, read an article from the *Medical World* on "Pneumonia" by Dr. D. P. Oldham, Mount Juliet, Tennessee.

Meeting of January 7

The January meeting of the Pike County Medical Society was held at the Levering Hospital, January 7, 1929, at 7:30 p. m. There were thirteen members present. A dinner was served by the hospital board followed by a scientific program:

Dr. T. Hurley Wilcoxon, Bowling Green, read a paper on "Influenza," which was very timely and created a general discussion.

E. A. CUNNINGHAM, M.D., Secretary.

RALLS COUNTY MEDICAL SOCIETY

The Ralls County Medical Society have elected the following officers for 1929: President, Dr. H. B. Norton, Center; secretary, Dr. T. J. Downing, New London; delegate, Dr. J. E. Brown, Perry.

T. J. DOWNING, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL
SOCIETY



L. E. HUBER, M.D., Moberly
PRESIDENT, 1929

Although one of the younger men in the practice of medicine, Dr. L. E. Huber, Moberly, has made for himself such a favorable impression upon the medical profession of Randolph and Monroe Counties that he was elected president of the organization for 1929.

Born in La Rue County, Kentucky, in 1896, Dr. Huber received his high school education in Kansas City, Kansas, where his parents had moved, graduating from Argentine High School in 1918. After receiving his medical degree in 1922 he interned at the Ensforth Hospital in St. Joseph, the Wabash Hospital at Decatur, Illinois, and was appointed junior house surgeon at the Wabash Hospital in Moberly. In 1924, he was promoted to senior house surgeon, a position he still retains. Dr. Huber is a Mason and a member of Tau Alpha Epsilon, a Greek Medical Fraternity, is married and has two children, a daughter of six years and a son two years old.

Meeting of December 11, 1928

The Society held its December meeting in the Chamber of Commerce rooms at Moberly, Tuesday evening, December 11, 1928. Dr. C. K. Dutton, Moberly, president, presided. There were eighteen members present, as follows: Drs. T. S. Fleming, C. K. Dutton, G. O. Cuppaidge, L. E. Huber, O. O. Ash, S. T. Ragan, F. L. McCormick, J. Maddox, L. O. Nickell, E. W. Shrader, P. C. Davis, R. D. Streeter, M. R. Noland, M. E. Leusley and C. H. Dixon, of Moberly; Dr. R. A. Woods, Clark; Dr. D. A. Barnhart, Huntsville; Dr. J. P. Allen, Cairo.

Arrangements were completed for our annual banquet for members and their wives to be held at the Merchants Hotel, Moberly, Thursday evening, December 20. Dr. Charles Hugh Neilson, President of the St. Louis Medical Society, and

Dr. Ralph A. Kinsella, of St. Louis, will be our guests and will furnish the scientific program.

The annual election of officers was held and the following were elected for the ensuing year: President, Dr. L. E. Huber, Moberly; vice president, Dr. E. W. Shrader, Moberly; secretary-treasurer, Dr. C. H. Dixon, Moberly, reelected; censor, Dr. J. Maddox, Moberly; delegate, Dr. F. L. McCormick, Moberly; alternate, Dr. G. O. Cuppaidge, Moberly, reelected.

This has been a very successful year for the Society so far as attendance and interest are concerned, and our members are looking forward to the new year's work with the hope of making it even better.

Meeting of December 20, 1928

The Society held its annual special meeting at the Merchants Hotel, Thursday evening, December 20, 1928. The meeting was preceded by a six course dinner and was attended by practically all members of the society, their wives, and many prominent physicians of the surrounding counties. The meeting was opened by the newly elected president, Dr. L. E. Huber, Moberly, who turned the program over to the secretary, Dr. C. H. Dixon, Moberly, as chairman.

Dr. S. T. Ragan, Moberly, gave the Address of Welcome and explained to the guests the purpose of the annual meeting. In his remarks he stated that the Society was some twenty-five years old and has continued to be as active as it was the day of its organization, having a membership of thirty-five. He voiced the intention of the Society to make a strong bid for the State Medical Convention of 1930.

Dr. D. A. Robnett, Columbia, called attention to the importance of the county societies and their regular meetings.

Dr. C. H. Neilson, vice dean of St. Louis University, sent to us through the courtesy of the Postgraduate Committee of the State Association, gave a lecture on "The Preparation of the Patient for Operation from the Standpoint of the Internist." He classified the various forms of nervousness and the causes from which they may occur. He urged great care in diagnosis, explaining that multiplicity of consultation and opinions often have a bad effect, and advised that the patient not be told the result of the diagnosis until careful study had led to the belief that the decision was correct.

Dr. R. A. Kinsella, St. Louis, also sent by the Postgraduate Committee, talked on the subject of "Recent Studies on Rheumatism." He told of the various forms of rheumatism, their causes and results, stating that some of the commonest kinds of rheumatism often develop from a very trivial injury. He explained that many times rheumatism is caused from tonsil or appendix trouble and an operation is the only remedy.

The following members and guests were present: Dr. E. J. Goodwin, St. Louis, Secretary of the State Association; Drs. C. H. Neilson and R. A. Kinsella, St. Louis; Dr. D. A. Robnett, Columbia; Dr. A. R. McComas and Mrs. M. A. McComas, Sturgeon; Drs. E. C. Grim and E. S. Smith, Kirksville; Dr. and Mrs. D. A. Barnhart, Dr. and Mrs. R. G. Epperly, and Mr. Willard T. Barnhart, Huntsville; Dr. and Mrs. Ralph M. Fellows, Dr. and Mrs. William Fellows and Dr. G. W. Hawkins, Salisbury; Dr. J. F. Flynt and Miss Sue Stuart, Paris; Dr. and Mrs. C. E. Byram, Jacksonville; Dr. J. P. Allen, Cairo; Dr. J. D. McAdam, Prairie Hill; Dr. A. W. Zillman, Keytesville; Dr. and Mrs. R. A. Woods, Clark; Dr. and Mrs. W. C. Alexander, Clifton Hill; Dr. and Mrs. O. O. Ash, Dr. Paul J. Blessinger, Dr. G.

O. Cuppaidge, Dr. and Mrs. P. C. Davis, Mr. Kiefer Davis, Dr. and Mrs. C. H. Dixon, Mr. Harold Dixon, Dr. Thomas S. Fleming, Dr. H. C. Griffith, Dr. and Mrs. L. E. Huber, Dr. M. E. Leusley, Dr. and Mrs. Jesse Maddox, Dr. and Mrs. F. L. McCormick; Dr. and Mrs. L. O. Nickell, Mr. John D. Maddox, Dr. and Mrs. O. K. Megee, Dr. S. T. Ragan, Dr. and Mrs. E. W. Shrader, Dr. R. D. Streeter, of Moberly.

C. H. DIXON, M.D., Secretary.

ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

At the December 19, 1928, meeting of the St. Francois-Iron County Medical Society, three new members were admitted to membership, namely, Dr. N. W. Hawkins, Bonne Terre; H. M. Roebber, Bonne Terre Hospital; Jack B. Grubbs, State Hospital No. 4, Farmington.

Dr. D. E. Smith, Bonne Terre, gave an interesting talk on "Fractures."

Although there were only seven members present at this meeting, the interest in the discussion on "Fractures" by Dr. Smith was well sustained and following Dr. Smith's talk the members discussed the business affairs of the Society. The general opinion was expressed that this had been one of the best and most profitable years of the Society's activities. The secretary reported that eight speakers had been sent to the meetings by the Postgraduate Committee of the State Association, and the Society enthusiastically voted to continue calling on the Committee for speakers during 1929. The secretary reminded the members that in order to profit by the presence of these speakers we should make it a point to attend the meetings so as to show our guests that we are interested in the subjects they present. Dues for 1929 were collected and we hope we can secure a place near the top of the Honor Roll.

R. APPLEBERRY, M.D., Secretary.

STE. GENEVIEVE COUNTY MEDICAL SOCIETY

The Ste. Genevieve County Medical Society held its annual meeting, December 12, 1928.

After the reading of the minutes and disposal of routine business, the applications of Drs. Arthur E. Sexauer and R. C. Lanning, of Ste. Genevieve, for membership in the Society were read. The applications having been approved by the Board of Censors were voted on and Drs. Sexauer and Lanning were unanimously elected to membership. The following officers were elected for the ensuing year: President, Dr. J. A. Wilkins, St. Marys; vice president, Dr. G. M. Rutledge, Ste. Genevieve; secretary-treasurer, Dr. R. W. Lanning, Ste. Genevieve; delegate, Dr. G. M. Rutledge, Ste. Genevieve; board of censors, Drs. G. M. Rutledge and C. J. Clapsadle, Ste. Genevieve; Dr. J. A. Wilkins, St. Marys.

The report of the treasurer for 1928 was read and approved.

R. W. LANNING, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The regular monthly meeting and annual banquet of the St. Louis County Medical Society held at Van Horn's Farm, December 12, 1928, was enjoyed by fifty-three guests, including members, their wives and friends. Short talks were made by several of the members. After the banquet the members retired to an adjoining room to hold the business meeting and to elect officers for 1929.

Dr. W. H. Townsend nominated Dr. A. W. Westrup, Webster Groves, for president. The nomination was seconded by Dr. W. F. O'Malley, and Dr. Westrup was elected president by acclamation.

Dr. W. F. O'Malley nominated Dr. H. N. Corley, Webster Groves, for vice president. Seconded by Dr. E. L. Fredericks, Dr. Corley was elected vice president by acclamation.

Dr. E. E. Tremain, Maplewood, was nominated for secretary by Dr. R. B. Denny. Dr. Otto W. Koch seconded the nomination and Dr. Tremain was elected secretary by acclamation.

The following were elected delegates: Dr. Otto W. Koch, Clayton; Dr. C. P. Dyer, Webster Groves; alternates, Dr. H. N. Corley, Webster Groves; Dr. J. H. Sutter, University City. Censor, Dr. R. B. Denny, Creve Coeur.

Drs. R. L. Foster and J. T. Griest, St. Louis, residents of St. Louis County, were elected to membership by transfer from the St. Louis Medical Society.

Dr. Paul R. Whitener, Overland, was elected a member by transfer from the Indianapolis County (Indiana) Medical Society.

On motion of Dr. W. F. O'Malley, seconded by Dr. Garnett Jones, the retiring president, Dr. F. P. Knabb, Valley Park, was given a vote of thanks. Dr. Knabb responded with a short talk.

Members present: Drs. R. L. Foster, E. L. Fredericks, Garnett Jones, J. D. Haywood, Joseph McNearney, J. T. Griest, F. L. Finley, and J. A. Sterling, St. Louis; Drs. F. P. Gaunt, H. N. Corley, C. C. Irick, W. F. O'Malley, F. C. E. Kuhlmann, and A. W. Westrup, Webster Groves; Drs. E. O. Breckenridge, P. N. Davis, E. E. Tremain, and W. H. Townsend, Maplewood; Dr. Harry Greensfelder and John H. Sutter, University City; Dr. F. P. Knabb, Valley Park; Dr. Otto W. Koch, Clayton; Drs. R. A. Walther and J. A. Prichard, Overland; Dr. R. B. Denny, Creve Coeur.

E. E. TREMAIN, M.D., Secretary.

ST. LOUIS MEDICAL SOCIETY

Meeting of the General Society, November 20, 1928

The meeting was called to order at 8:30 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meeting of November 13 were read and approved.

Dr. J. A. Hartmann presented a specimen of double uterus.

The program consisted of the following:

"X-ray and Clinical Study of Fractures of the Skull," illustrated with lantern slides, Drs. L. R. Sante and William T. Coughlin.

"Clinical and Pathological Study of Heart Diseases," Drs. Ralph A. Kinsella and Dean Collier.

"Twin Lithopedion; Report of Case, Illustrated With Lantern Slides," Drs. Louis Rassieur and Fred Emmert.

Discussion by Drs. Francis Reder, Walter C. G. Kirchner, George Gellhorn; Dr. Coughlin closing.

The By-Laws were amended so that the Council will not meet in the months of July, August and September, and providing for admission of Junior members within four years of graduation.

Attendance-200.

ROLAND S. KIEFFER, M.D., Secretary.

Meeting of November 27, 1928

The meeting was called to order at 8:35 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the previous meeting were read and approved. The program consisted of the following:

"Concato's Disease" (Presentation of Patient), Dr. W. G. Becke.

"Intestinal Obstruction," Dr. Charles E. Hyndman.

"Carcinoma Within the Diverticulum of the Bladder," Report of Two Cases Illustrated With Lantern Slides, Dr. John R. Caulk.

Discussion by Drs. Joseph F. Bredeck, H. M. McClure Young, Grayson Carroll and Francis Reder. Attendance 60.

Meeting of December 4, 1928

The meeting was called to order at 8:35 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meeting of November 27, 1928, were read and approved. The program consisted of the following:

"Myasthenia Gravis" (Presentation of Patient), Dr. August A. Werner.

"The Time of Ovulation in the Menstrual Cycle as Checked by the Recovery of Ova from the Fallopian Tubes" (Lantern Slide Demonstration), Dr. Q. U. Newell.

"Endocrine Factors in Obesity," Dr. Louis Cohen. Discussion by Drs. A. B. Jones and Dan L. Sexton. Attendance 75.

A. H. DIEHR, M.D., Secretary pro tem.

Meeting of December 11, 1928

The meeting was called to order at 8:30 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meeting of December 4, 1928, were read and approved. The program consisted of the following:

"The Significance of Certain Electrocardiograms Usually Diagnosed 'Left Ventricular Predominance,'" Dr. Drew Luten.

"Malignant Hypertension," Dr. Warren P. Elmer. "The Management of Congestive Heart Failure in Goiter Patients," Dr. Samuel B. Grant.

Discussion by Drs. Willard Bartlett, Jr., Charles M. Gruber, Arthur E. Strauss; Dr. Grant closing. Attendance 75.

Meeting of the Council, November 14, 1928

The meeting was called to order at 8:10 p. m. by the president, Dr. Charles Hugh Neilson. The minutes of the meeting of October 10, 1928, were read and approved.

A letter from Dr. Arthur C. Brooks resigning from active membership was read and on motion of Dr. Krebs, seconded by Dr. J. F. Mayes, the resignation was accepted.

The following applicants were elected to membership:

Active: Clarence H. Crego, Jr., 453 N. Taylor Avenue; Norton J. Eversoll, 4641 Washington Boulevard; George L. Tonelli, 5812 Delmar Boulevard. Junior: Ralph M. S. Barrett, St. Anthony's Hospital; Robert F. Bonner, St. Anthony's Hospital; Clarence T. Eckert, Jewish Hospital; Oscar P. Hampton, Jr., City Hospital; Victor F. Kloepper, 3860 S. Broadway; Roy W. Merkle, Isolation Hospital; John B. O'Neill, St. Louis Maternity Hospital; Herbert S. Phillips, City Hospital; Walter A. Ruch, City Hospital; Victor E. Schermann, 2919 S. Kingshighway; Leslie W. Young, City Hospital. Active by transfer: Bertrand Y. Glassberg, 701 Beaumont Bldg., (from Chicago Medical Society); Richard K. Kimmel, 3557 Arsenal Street, (from Macon County (Illinois) Medical Society).

The report of the special committee relative to the offer of a pathological museum by the City of St. Louis was read, and it was moved that this offer

be respectfully declined as the Society was not in a position to accept it at the present time. Motion seconded and carried.

A report from Dr. L. H. Behrens for the special committee on the Beaumont Memorial was read and filed.

Dr. C. A. Vosburgh reported verbally for the James Moores Ball collection committee. The committee was empowered to make a contract not to exceed \$5000 for furnishing the exhibit room for this collection.

Dr. Charles Hugh Neilson suggested that a shadow box be purchased for the Society. The Chairman of the House Committee stated that he would make arrangements for the purchase of a shadow box.

Councilors present: Drs. R. B. H. Gradwohl, John Green, J. F. Hardesty, F. J. V. Krebs, J. F. Mayes, C. H. Neilson, Amand Ravold, R. E. Schlueter, H. Unterberg, C. A. Vosburgh, E. C. Funsch.

Councilors absent: Drs. Fred Bailey, R. S. Kieffer, Francis Reder. Visitors present: Drs. Charles F. Sherwin and Irving H. Boemer.

EDWIN C. FUNSCH, M.D., Secretary pro tem.

Special Meeting of December 3, 1928

The meeting was called to order at 8:25 p. m. by the president, Dr. Charles Hugh Neilson.

Dr. Neilson stated the purpose of the meeting was to discuss the \$80,000 loan on the building and mentioned the following possible courses to be pursued in liquidating this indebtedness:

1. Bond issue.
2. Raising dues.
3. Canvassing membership.

Drs. F. J. V. Krebs, H. Unterberg, John Green, J. F. Mayes and J. F. Hardesty expressed themselves as favoring a bond issue. No action was taken.

Councilors present: Drs. John Green, J. F. Hardesty, J. F. Mayes, F. J. V. Krebs, H. Unterberg, C. H. Neilson, Roland S. Kieffer. Councilors absent: Drs. Fred Bailey, E. C. Funsch, R. B. H. Gradwohl, Amand Ravold, Francis Reder, R. E. Schlueter, C. A. Vosburgh.

ROLAND S. KIEFFER, M.D., Secretary.

VERNON-CEDAR COUNTY MEDICAL SOCIETY

The Vernon-Cedar County Medical Society have elected the following officers to serve during the year 1929: President, Dr. J. W. Dawson, Eldorado Springs; vice president, Dr. C. L. Keithly, Milo; secretary, Dr. J. T. Hornback, Nevada; delegate, Dr. J. M. Yater, Nevada; alternate, Dr. E. H. Liston, Nevada.

J. T. HORNBACK, M.D., Secretary.

WOMEN'S AUXILIARY

OFFICERS 1928-1929

President, Mrs. Willard Bartlett, St. Louis.

President-Elect, Mrs. M. P. Ravenel, Columbia.

1st Vice President, Mrs. Harry F. Parker, Warrensburg.

2nd Vice President, Mrs. T. O. Klingner, Springfield.

3rd Vice President, Mrs. M. A. Hanna, Kansas City.

4th Vice President, Mrs. James F. Owens, St. Joseph.

Corresponding Secretary, Mrs. Theodore Prewitt Brookes, St. Louis.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. W. H. Goodson, Liberty.

Auditor, Mrs. Vilray P. Blair, St. Louis.

Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Henchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

ORGANIZED COUNTIES AND PRESIDENTS OF WOMEN'S AUXILIARIES

COUNTY	PRESIDENT	ADDRESS
Atchison.....	Mrs. E. P. Taylor.....	Fairfax
Audrain.....	Mrs. H. C. Brashear.....	Mexico
Bates.....	Mrs. E. N. Chastain.....	Butler
Boone.....	Mrs. M. P. Ravenel.....	Columbia
Buchanan.....	Mrs. F. H. Spencer.....	St. Joseph
Butler.....	Mrs. L. B. Knecht.....	Poplar Bluff
Caldwell.....	Mrs. Emma A. B. Thompson.....	Breckenridge
Cape Girardeau.....	Mrs. W. W. Ford.....	Gordonville
Cass.....	Mrs. J. S. Triplett.....	Harrisonville
Clay.....	Mrs. J. J. Gaines.....	Excelsior Springs
Clinton.....	Mrs. C. H. Risley.....	Cameron
Cole.....	Mrs. S. P. Howard.....	Jefferson City
Davies.....	Mrs. L. R. Doolin.....	Gallatin
Dent.....	Mrs. A. T. McMurtry.....	Salem
Gentry.....	Mrs. J. N. Barger.....	Albany
Greene.....	Mrs. Paul F. Cole.....	Springfield
Grundy.....	Mrs. J. E. Neely.....	Trenton
Henry.....	Mrs. R. D. Haire.....	Clinton
Holt.....	Mrs. F. E. Hogan.....	Mound City
Iron.....	Mrs. R. W. Gay.....	Ironton
Jackson.....	Mrs. A. L. Skoog.....	Kansas City
Jasper.....	Mrs. C. C. Cummings.....	Joplin
Johnson.....	Mrs. H. F. Parker.....	Warrensburg
Knox.....	Mrs. W. F. O'Connor.....	Edina
Laclede.....	Mrs. J. C. Scott.....	Lebanon
Lafayette.....	Mrs. J. D. Guyot.....	Higginsville
New Madrid.....	Mrs. P. M. Mayfield.....	Portageville
Phelps.....	Mrs. A. S. McFarland.....	Rolla
Pike.....	Mrs. T. G. Hetherlin.....	Louisiana
Platte.....	Mrs. H. M. Clark.....	Platte City
Randolph.....	Mrs. T. S. Fleming.....	Moberly
St. Francois.....	Mrs. G. L. Watkins.....	Farmington
St. Louis City.....	Mrs. Raymond M. Spivy.....	St. Louis
St. Louis.....	Mrs. W. F. O'Malley.....	Webster Groves
Saline.....	Mrs. F. A. Howard.....	Slater
Scotland.....	Mrs. P. M. Baker.....	Memphis
Vernon-Cedar.....	Mrs. T. B. Todd.....	Nevada

MESSAGES ON THE YEAR BOOK OF THE WOMEN'S AUXILIARY

I am impressed with your educational program and especially with that part which has to do with matters of public health. As Sir Robert Philip pointed out in his address at the British Medical Association last year, the physician should be a gardener in the garden of health. While much of his time, indeed most of his time, with life as it now is, may be given to the care of those who are ill and wounded, yet his main preoccupation, like that of the gardener, should be to bring it about that these illnesses and these accidents do not occur, and that the flowers of the garden may be each year more hardy and more beautiful.

One of our most important duties as physicians,—and in this field such organizations as the Women's Auxiliary may be of the very greatest help,—is to cooperate in every way with our boards of health and with all worthy activities directed toward the instruction and

education of the public in the way in which they should live, in pointing out the hidden dangers which beset them in their daily life.

Your program seems to me most comprehensive in its scope, and points out so well some of the many fields in which the Women's Auxiliary may make itself felt.

W. S. THAYER, M.D., Baltimore, President,
American Medical Association.

May I extend my congratulations upon the publication of your Fifth Anniversary Year Book and best wishes for continued success?

The cooperation and interest of the Women's Auxiliary in Missouri in the work of the State Board of Health and other public health agencies are of great assistance not only in that State, but their sphere of influence extends outside as well. It is indeed a pleasure to have this opportunity to express to the Auxiliary, and to the State Medical Association which it serves, my cordial appreciation of the understanding and support which we have always received from their representatives.

H. S. CUMMING, M.D., Surgeon-General,
U. S. Bureau of the Public Service,
Washington, D. C.

To this, the first Year Book of the Women's Auxiliary of the Missouri State Medical Association, we of the medical profession extend a hearty welcome. We also take this opportunity to express to you our sincere appreciation of the aid which your organization has afforded to the calling in the education of the lay public.

In any association of state wide scope it is impossible for all of the membership to be thoroughly informed as to the activities of the organization, the aspirations and the accomplishments. Therefore it is highly fitting that this Year Book should be issued to every member, inspiring each to greater endeavor and engendering a just pride in the past work of the Auxiliary.

Every medical organization of ethical nature is viewed as legitimate prey for exploitation by numerous sociological, economical and commercial self-seeking and self-aggrandizing organizations. In following the policies of the American Medical Association and avoiding entangling alliances with fanatical propaganda, the Auxiliary has been extremely fortunate. It has gone about the work of fostering and developing Hygeia with such gratifying results that we may well feel a just pride in its accomplishment. Always more can be attained by education than by coercion.

The Missouri State Medical Association is proud of its Auxiliary.

FRANK I. RIDGE, M.D., President, Missouri
State Medical Association.

Notes

The Year Book of the Women's Auxiliary to the Missouri State Medical Association has been published and presents a compilation of the activities of the organization. It contains an account of the activities previous to inaugurating the Auxiliary, the programs of the meetings that have been held, officers, Constitution and By-Laws, and members of the county auxiliaries.

CORRESPONDENCE

CONJUNCTIVITIS TULARENSIS (OCULO-
GLANDULAR TULAREMIA)

Report of a Case

Springfield, Mo., Jan. 4, 1929.

To the Editor:

At a regular meeting of the Greene County Medical Society December 28 last, I reported a case of *B. tularensis* infection of the eye (conjunctivitis tularensis) which had recently come under my observation.

Although the first case of tularemia infection of man on record was detected by Wherry and Lamb in 1914, in a case referred to them from the eye service of Dr. Derrick T. Vail, Cincinnati, and reported by Dr. Vail in the *Ophthalmic Record* for that year as "Squirrel-Plague Conjunctivitis," subsequent experience has proved that the particular mode of infection in that case, namely through the conjunctival mucous membrane resulting in the so-called oculoglandular type of the disease, is more rare than other forms of the infection, particularly those forms in which the specific organisms gain entrance through abrasions of the skin of the hand or other parts of the body resulting in the so-called ulceroglandular type of the disease.

This case of *B. tularensis* infection of the eye (conjunctivitis tularensis) is reported, not with the view of adding anything in particular to our knowledge of the disease per se, but rather to emphasize further the fact that tularemia as a disease does exist in this locality, and furthermore to record the occurrence of an instance of the disease of that comparatively rare (conjunctival) form, the oculoglandular type, as well as to indicate the ease with which the disease may be overlooked in such cases.

It is to Dr. G. B. Lemmon, Springfield, Mo., that credit is due for diagnosing and promptly reporting the first case of tularemia recognized in this vicinity, a case of the ulceroglandular type reported by him from Greene County in *THE JOURNAL* for May of last year.¹ His report, as will be remembered, followed closely upon the two cases reported in the April number of *THE JOURNAL* by Dr. M. George Gorin,² St. Louis, whose cases also were, if I mistake not, of the ulceroglandular type.

The clinical examination of the case here reported when first seen revealed the following characteristics: First, a history of having handled wild rabbits (dressing preparatory for cooking) four days prior to onset of symptoms; second, presence of multiple ulcers on conjunctiva, upper and lower lid, right eye (monocular), with ptosis, and such swelling by edema of upper lid and chemosis of the palpebral conjunctiva as to cause it to partially overlap the lower lid and close the eye; third, profuse glairy, mucopurulent discharge from conjunctival sac; fourth, marked enlargement of the lymphatic glands in preauricular parotid, submaxillary and cervical region on side of affected eye; fifth, continued fever for three weeks, with remissions, ranging from 100 to 103 degrees.

The history of the case follows: W. W., a boy, age 11 years, living in a small town, referred by Dr. T. H. Casey, Lebanon, Mo. His previous health was good except for evidence of a previous chronic disease of faucial tonsils.

Dec. 4, 1928, four days after dressing the rabbits, the boy came home from school complaining of pain in his right eye. The eye watered, was red and felt as though something was under the lid. The following morning the boy felt sick, did not go to

school, but remained at home in bed with red and painful eye; had sore throat, headache, loss of appetite, fever and slight swelling of glands back of angle of jaw, right side, the side of the affected eye.

The following day the upper lid of affected eye had become so swollen as to completely overlap lower, with profuse glairy mucous discharge issuing from conjunctival sac. There was a continued fever of remittent type; morning and afternoon temperature ranged from 100 to 103 for a period of more than two weeks, so that typhoid fever was suspected by the family physician and repeated tests for this disease were made with negative results.

Patient was first seen by me at the office on Friday, December 14, ten days after onset of disease. At this time the right eye was completely closed by marked swelling of upper lid, with a profuse glairy mucopurulent discharge issuing from between the lid margins, and well marked swelling of the preauricular, parotid, submaxillary and cervical glands on side of affected eye. There was also a severe sore throat, simulating acute tonsillitis, with obstructive rhinitis, bilateral, and a temperature of 101.5.

On eversion of upper lid of affected eye there were revealed numerous yellow necrotic ulcers on the palpebral conjunctiva, both upper and lower lids. The ulcers were round, punched out, with necrotic bases extending in some instances through conjunctiva and subconjunctival tissue to the body of tarsus on the upper lid. The ulcers in general were discrete except in one place on the upper lid where they were confluent, two or more ulcers having apparently fused. The surrounding conjunctiva was red and the conjunctival papillae much swollen, resembling in some respects acute trachoma. Although a single phlyctenule-like ulcer later appeared on the upper portion of the bulbar conjunctiva, there was never any manifest tendency to corneal involvement, neither have the inflamed glands up to the present time shown any tendency to suppurate.

The clinical picture in this case manifested such marked similarity in all essentials to the so-called "squirrel-plague conjunctivitis" of Vail; not to discuss in this place the apparent close similarity to, and the causes for my suspicion of, the possible identity of this disease to Parinaud's conjunctivitis with adenopathy; Pascheff's conjunctivitis infectiosa necroticans; and possibly also to the so-called agricultural conjunctivitis reported a few years ago by Dr. Gifford, Omaha, namely, the monocular character of the affection; deep multiple necrotic ulcers on the conjunctiva; marked edema of upper lid; chemosis of conjunctiva, with mucopurulent discharge; preauricular, parotid, submaxillary and cervical glandular swelling confined to the side of the affected eye; and continued fever of a remittent type for a duration of from ten to fourteen days (characteristics apparently common to all the above forms of conjunctivitis), that *B. tularensis* infection was suspected as the active agent in the disease.

When the fact was elicited that the boy had dressed two wild rabbits four days prior to the onset of the illness the suspicion of tularemia became so strong that a specimen of blood serum was forwarded to the Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., for test for its specific reaction to *B. tularensis*, which was promptly reported positive in dilution of 1-320, thus confirming the diagnosis of tularemia.

While the first authentic case of tularemia observed in Missouri is said to have been conceded by no less authority than Dr. Edward Francis, U. S. Public Health Service, to have been reported by

Dr. John Lavan, Kansas City, in March, 1926; and while the first case of the disease from Greene County, Mo., was reported by Dr. Lemmon, Springfield, in a communication to *THE JOURNAL* in May, 1928, a case, as stated above, of the ulceroglandular type, this is, I think, the first case of conjunctivitis tularensis, or the so-called oculoglandular type of tularemia, reported from this vicinity and, so far as I am at present able to determine, from the State of Missouri.

Jos. W. LOVE, M.D.

1. Lemmon, George B.: Correspondence, First Case of Tularemia Recognized in Greene County, *J. Missouri M. A.* 25:1220, 1928.

2. Gorin, M. George: Tularemia, Report of Two Cases, *J. Missouri M. A.* 25:140, 1928.

IMPORTANT STUDY IN ECONOMICS

535 North Dearborn Street, Chicago,
January 5, 1929.

To the Editor:

As you receive this letter, the questionnaires on The Capital Investment in Medicine will be ready to leave the headquarters of the American Medical Association. A very important group, composed of economists, publicists, physicians and others, has undertaken to make an investigation of the cost of medical care, the results of which will be of great importance to the medical profession. The American Medical Association has undertaken to collect information pertaining to the capital investment in medicine and the income from medical practice.

As a part of the work of the above-mentioned group known as The Committee on the Cost of Medical Care, the American Medical Association is to request more than 25,000 physicians, selected at random, to furnish certain data pertaining to the invested capital involved in physicians' education, intern training, post-graduate courses, office and traveling equipment, office maintenance, medical society affiliations, library maintenance and medical licensure fees.

This, as you will realize, is a survey of the profession, by the profession, and for the benefit of the profession. The questionnaire is to be anonymous and, therefore, there need be no fear of any embarrassing or undesirable results from the information returned.

You are urged to encourage, among the members of your state society, a serious and thoughtful consideration of this matter to the end that complete and reliable data will be given on the several items. We desire that you suggest, through your medical journal, by news item, editorial and other appropriate means, the importance of this survey and the desirability of universal participation on the part of the physicians who receive the questionnaire.

Yours very sincerely,

R. G. LELAND, M.D.,

Director of Study.

YOU ARE RIGHT

Excelsior Springs, Mo.
January 23, 1929.

To the Editor:

In my *JOURNAL* for January, I read with much interest Dr. Sparks excellent contribution on page 24; I'm going to store that away back in my head for future reference—it's worth the price of membership in our state and county societies, and even more, to read of such happy experiences.

However, since when have we been spelling it "pruritis"? Not only does the doctor spell it that way, but your "Table of Contents" on cover page

gets it the same way. I know of no rule by which the "i" should take the place of the "u" in "pruritus." But, maybe I am wrong; if so, stop me.

Fraternally,

J. J. GAINES, M.D.

Books for Leisure Moments

The reviewer wonders if the charge of Chauvinism may be fairly leveled against one who voices a note of pride in the accomplishment of a fellow townsman. If such a charge may be made justly, then this particular reviewer is in a fair way to shoulder the burden of being considered a Chauvinist for he cannot escape the thought and the belief that Dr. James Moores Ball has performed his second bibliophilic feat for higher medicine in St. Louis. In 1910 Dr. Ball rejoiced book lovers with his Andreas Vesalius, and now he has given them the less pretentious looking but no less substantial volume, "Sack-'em-up-Men." (Oliver & Boyd, Edinburgh.)

The monograph deals with that historic chapter of medicine bound up with the development of anatomy. It is the story of the body snatchers, the so-called resurrectionists, who started their degrading vocation in Ireland in the late eighteenth and early nineteenth centuries, spread the net of their nefarious activities over the British Isles and became progressively bolder until Parliament put an end to the nasty business in 1832 by the passage of the Warburton Anatomy Act legalizing the study of anatomy.

From the tolerably indecent rifling of graves and selling the bodies to various schools of anatomy, the scandal developed into the commission of murder in order to secure cadavers for dissection. When this stage was reached the storm broke. The famous Burke and Hare case, resulting in the execution of Burke, brought English lawmakers to their senses, resulted in the Warburton Act and put an end to the unspeakable chapter of criminal violation of the dead.

So much for a bare outline of the history of the resurrectionists. To one less a student of history than is Dr. Ball the task of telling the story in dignified fashion would have presented great difficulty. As we read Ball's story however there is no evidence of mental hazards, no halting or hesitant backing and filling, but rather a smooth logical development of the idea that body snatching and even murder was the natural outgrowth of the failure of society to provide legitimate means for studying the human body. Failure to provide went hand in hand with the insistent and oft impatient demand of society to be treated scien-

tifically when ill. It was this gap that the resurrectionists fatuously attempted to bridge.

Ball traces the development of anatomy from earliest times, furnishing the most delightful thumb-nail vignettes, in words, of the outstanding anatomists of history, interlarding the story with illustrations novel in type and selected with consummately good judgment and taste. The story of anatomy is brought down to the time of the resurrectionist scandals in the incredibly short compass of forty or fifty pages.

The subsequent one hundred and fifty pages furnish us intimate details of the body-stealing, murderous days, told by a skillful method of combined narrative, biographical and critical development with carefully documented bibliographical annotations. The last chapter is devoted to anatomical instruction in the United States.

No book is flawless. "The Sack-'em-up-Men," however, is so admirably well done that any moot points should be left to him who sets about to write a better book on the same subject. Even he, granting him a modicum of modesty, would probably reach the ultimate conclusion that "he beholdest the mote in his brother's eye but considerest not the beam in his own."

M. G. S.

A very interesting and exciting book is H. Ashton-Wolfe's "Warped in the Making," a collection of stories of "Crimes of Love and Hate" (Houghton Mifflin Co., Boston and New York). The stories in this book are all the more exciting because they are actual happenings and not the usual detective story fiction.

The author was born in London, but spent his early years on the plains of Colorado and Arizona. Later he became an assistant of Dr. Bertillon, the great criminologist, and he has since been assigned to investigations all over Europe. He has had a long and spectacular experience in the investigation of crime and has a wide acquaintance among detective and police agencies. He is interpreter in the French and English criminal courts.

It is quite an unusual opportunity to read a story like that of "Orsini, the Croupier." We read and hear much about Monte Carlo, but in this story we can almost picture the place as it really is, so vivid are the descriptions. We can feel the tense atmosphere in the room around that table where spins the hand of fate. No gathering of people perhaps ever combines more human emotions than can be found here.

Very thrilling indeed are the two stories, "The Suicide Room" and "The Scented Death." After reading about these murders

that have actually happened, we naturally draw our own ideas about humanity. A murderer must be abnormal and lacking in intellect. Premeditated murders are committed for one of three reasons—hatred, sex or greed. Most murders are wantonly brutal or astoundingly stupid. When the exception occurs, however, and the gifted, educated, intellectual man, who because of a "kink" in his brain, kills, then all the knowledge available must needs be used to unravel the mystery of the crime committee. This is the case in the two stories just mentioned.

This book really excels in interest the ingenious efforts in crime detection. The book is a popular addition to the literature of criminology.

L. C.

A new book that is of much interest both to the layman and the medical man is Dr. Charles S. Singer's "Short History of Medicine" (Oxford University Press, New York and London), for the author does not concern himself with magic and pseudomedicine, but with the historical development of the true science. The facts given in this book are instructive and are written in a very clear style, supported by helpful illustrations. The contents of the book pleasantly supply much that is essential to an adequate education.

The first chapter deals with the origin of Greek medicine. We learn that the Greeks not only started scientific medicine upon its course, but also indicated the substantial basic elements of anatomy, physiology and pathology. Another important bit of knowledge handed down to us concerns our bodily constitution, habit or temperament. It is also from the Greeks that all our medical terms have been obtained. While much of the valuable information given to the medical world came from the Greeks, we must not pass up the important part provided by the Egyptian civilization. We learn that many drugs were derived from Egypt, as well as others that were suggested by Egyptian practice. Also, the basis of Greek medical ethics can be traced to Egypt. Some of the practical devices of Greek medicine, such as the forms of surgical instruments, were of Egyptian origin.

It is with interest that we read through the book, tracing the various movements in the medical world from the beginning of Egyptian civilization down through the eighteenth century and on to the present time. We have seen how all the sciences in turn have been made to bring their tribute to the alleviation of suffering. Health, we agree, is a public asset and accordingly its promotion has now been recognized as a public duty. The ad-

vances in medicine are the result of a close observance of the laws of nature—hence, to control nature we must, above all things, understand nature.

To every one interested in the art of keeping well and to any one connected in anyway with the medical profession Dr. Singer's book will be as valuable as it is entertaining. Between the covers of this book is assembled a vast amount of interesting historical information, available nowhere else in so compact and readable a form. Dr. Singer is an authority on this subject and is the author of a number of medical books. He is lecturer on the history of medicine in the University of London.

L. C.

PROPAGANDA FOR REFORM

UNGUENTUM MAZON.—An inquiry was sent to the Belmont Laboratories, Inc., to ascertain whether the composition of Mazon and Mazon Soap and Ointment was secret, and if not, what were the formulas. The Belmont Laboratories, Inc., replied as follows: We very much regret our inability to comply with the request contained in your letter dated September 21 with reference to Mazon and Mazon Soap for the reason that the composition of both of these products is secret. It seems hard to believe that there still are pharmaceutical houses that will endeavor to exploit products of secret composition to the medical profession. The physicians who are asked to buy such products should refer the detail men to the paragraph in the Code of Ethics of the American Medical Association which states that . . . it is equally unethical to prescribe or dispense secret medicines or other secret remedial agents, or manufacture or promote their use in any way. (Jour. A. M. A., October 20, 1928, p. 1213.)

POWDER CANDY MINERALIZED.—The Council on Pharmacy and Chemistry reports that Granger Farms, Buskirk, N. Y., requested acceptance for New and Nonofficial Remedies of Granger Farms Power Candy Mineralized. The candy is claimed to contain one part of tincture of iodine U. S. P. in 5,000; one part in 4,000 of ferrous lactate; 1 per cent. of calcium carbonate; 1 per cent. of calcium phosphate tribasic; and one-twentieth of 1 per cent. of calcium glycerophosphate. The proprietor stated that he is "convinced that with the exception of epidemics and injuries, about 99.44 per cent of the ills that American people are suffering from are due directly or indirectly to the lack of proper mineralization of their foods and especially the lack of calcium." The Council held Power Candy Mineralized not to come within the scope of New and Nonofficial Remedies. Because of the unwarranted claims made for it, the use of the product, in the opinion of the Council, is contrary to the public welfare. The candy appeared to be a commercial venture using public health or welfare as sales talk, and in so doing the promoters go beyond the proved facts in (1) claiming that calcium deficiency is almost universal in this country; (2) claiming that such diseases as diabetes and cancer are due to calcium deficient diet; and (3) claiming that mineral-

ized candies are an efficient and safe method of correcting the alleged calcium deficient diet. (Jour. A. M. A., October 27, 1928, p. 1289.)

TREATMENT OF TYPHOID BY SO-CALLED DETOXICATED VACCINE.—The formaldehyde detoxification principle elaborated by Ramon has been applied to typhoid vaccine. The method consists of incubating cultures of the typhoid bacillus with formaldehyde in such a manner that the toxic principle is destroyed while the antigenic properties remain, and is similar in principle to diphtheria toxoid (which has been admitted to New and Nonofficial Remedies). The number of cases on which this vaccine was tried does not permit the drawing of conclusions as to its value. (Jour. A. M. A., November 3, 1928, p. 1378.)

BOOK REVIEWS

MEMOIRS AND ADDRESSES OF TWO DECADES, by Dr. J. A. L. Waddell. Edited by Frank W. Skinner, Consulting Engineer. Easton, Pa.: The Mack Printing Company, 1928. Pp. 1174. Price, cloth, \$5.00.

Dr. Waddell is the Sir William Osler of the engineering world. Decorated by half a dozen foreign governments, honored by nearly a score of American universities, and by engineering societies throughout the world, author, teacher, practical economist, and technical expert, at 74 he still retains an active interest in the profession he has so long ornamented, and recently he sailed for Shanghai, to serve as principal consultant for the Chinese National Railways.

While it is as an authority on steel bridgework that his great reputation is chiefly based, his career may well stand as a shining example to young men in all of the learned professions.

This bulky volume covers a multitude of interesting subjects. The diction and clearness of expression are striking, and the author's catholic taste in scientific research is admirably exemplified. Whether it be in a discussion of nickel steel alloys in a Pittsburgh laboratory, a lecture on engineering ethics at the University of California, or a learned dissertation on the layout and probable cost of a bridge across the Yangtze River, to join the cities of Nanking and Pukow, the author's versatile mind is equally at home, and in complete charge of the situation, and the book throughout is as interesting as a well written novel.

It is a volume which deserves a place on the shelves of every well selected scientific library.

R. L. S.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume 8, number 6. (Pacific Coast Number—December, 1928) Philadelphia and London: W. B. Saunders Company. Price, paper \$12.00.

This is the Pacific Coast Surgical Association number and is dedicated to the memory of John Hunter and the bicentenary of his birth. It also contains an index to the volume. The sketch of Hunter's life is an exceedingly interesting though brief description of the man himself, his discoveries, achievements, museum, and the ideals animating his life. The technical contents cover a wide range of surgical conditions described by thirty-four contributors.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

MARCH, 1929

NUMBER 3

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ORIGINAL ARTICLES

BLEEDING: A DANGER SIGNAL*

THOMAS S. CULLEN, M.B.
BALTIMORE, MD.

One afternoon in the fall of 1912 I was going over the subsequent histories of the patients whose wombs I had removed for cancer years before. Twenty-six per cent. of these patients were alive at the end of five years. Many other patients had come too late for any operation.

I felt that if we were to save a greater per cent. of cancer of the womb patients it was absolutely necessary for us to let women know just what the signs of cancer are in order that they may be on their guard and go to their physicians the moment any danger symptom is noted.

I sat down and wrote a letter to Dr. Franklin Martin, the editor of *Surgery, Gynecology and Obstetrics*, and told him I felt that it was imperative for us to educate the public if a higher percentage of cures in cancer cases was to be obtained. He promptly replied, "Formulate your plans and bring them up at the meeting of the Clinical Congress in Brooklyn next month." I followed his advice and at the Brooklyn meeting a month later a committee was appointed. This committee was instructed to write cancer articles and to use the daily, weekly or monthly press as might be deemed most expedient. This committee had the backing of 2400 surgeons.

Within a year, thanks to the *Ladies' Home Journal*, *Collier's Weekly*, *McClure's*, and numerous daily papers, the committee reached a reading public of at least 11,000,000 people.

A little later on the American Gynecological Society appointed a cancer committee and the American Medical Association appointed our own committee as their representatives. In a short time the American Society for the Control of Cancer came into being and we all joined forces with it, particularly because a

large number of the laity were interested in this society. All realized what might be accomplished by early diagnosis.

Shortly after we started our campaign, my friend, Dr. Joseph C. Bloodgood, became interested in this subject, and today he is doing more to disseminate knowledge about the subject of cancer than anybody else in this or in any other country. When I see my friend Bloodgood hammering away in his most lucid manner on the subject of cancer, I always think of the man who has a hobby, and I must tell you a story about a hobby.

A lady was walking through an insane asylum and on opening a door she saw a man riding a broomstick. She said, "Good morning, I see you are riding a horse." He replied, "No, madam, it is a hobby; if it were a horse I could get off."

I am certainly glad that my friend Bloodgood has this subject as a hobby and I hope he will never be able to get off. In the course of his address he is going to speak to you on the subject of cancer in general, and, incidentally, about pigmented moles, and various other kinds. As we go along in medicine, we have a number of amusing as well as serious things with which to deal. I want you to remember the following story in connection with Dr. Bloodgood's discourse. This story will serve to impress indelibly the subject of moles on your mind.

There was a young lieutenant at Brownsville, Texas, who was to be transferred to Fort Leavenworth. The Colonel from Texas wrote to the Colonel at Fort Leavenworth saying, "This will introduce Lieutenant So-and-So. He is a charming fellow and a splendid soldier, but he is an inveterate gambler."

The Colonel at Leavenworth received the letter and met the Lieutenant who proved to be a charming fellow. The Colonel threw the letter over to the Lieutenant and said, "This is what your superior officer says; he says you are an inveterate gambler."

The Lieutenant answered, "I am perfectly frank to admit that I gamble. I just can't help it. For example, I'll bet you \$25 that you have a mole on your shoulder."

* An informal talk at the public meeting, 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

The Colonel said, "I haven't."

The Lieutenant replied, "I'll bet you \$25 you have."

The Colonel knew he had no mole on his shoulder, so he stripped off his coat, vest and shirt and said, "You see, I haven't a mole."

The Lieutenant said, "You are right, you haven't. Here is your \$25."

The Colonel from Leavenworth wrote the Lieutenant's former superior at Texas and said, "So-and-So is a charming fellow, but I agree with you that he is an inveterate gambler. He bet me \$25 I had a mole on my shoulder and I won the bet."

The Texas Colonel wrote back, "The rascal; he bet me \$100 that inside of ten minutes from the time he saw you he would have your shirt off."

I just want to anticipate my friend Bloodgood, so that you will never forget the mole story and the necessity of having moles removed.

Shortly after our committee was appointed in 1912, the American Medical Association asked for voluntary speakers to preach, so to speak, at churches on the Sunday preceding the meeting of the American Medical Association. It fell to my lot to hold forth in the pulpit of a prominent Philadelphia Methodist church. Although the people were very enlightened, they were not accustomed to hear plain talk as they are today, but the minister on that occasion was certainly a diplomat and knew how to handle matters. He knew I was going to talk on the subject of cancer in general and cancer in women in particular, and he took for his lesson the story of the woman who had the bloody flux, so all I had to do during the meeting whenever I wanted to refer to the symptoms was to refer to the evening lesson.

Cancer starts as a small outgrowth just like a little tree outgrowth, but it is not a stable thing. After a short while it commences to break down in the central portion and just the outlying portions will persist. What does that mean? How is that breaking down liable to terminate? With the further breaking down there is going to be a little discharge as from an ulcer. So the danger signal in some diseases in women, particularly in cancer of the womb, is first of all bleeding and then a slight discharge.

The womb is pear-shaped with the large part of the pear up and the neck or narrow part pointing down. The outer part of the neck of the womb is covered by tissue resembling skin, the inside by another kind of lining, and the inside of the body of the womb by still a different tissue. Whenever you have bleeding that cannot be satisfactorily explained you

ought to have it looked into instantly, just as you would investigate if you heard a noise in the house at night and thought there was a robber. If you used good judgment you would not molest him but would telephone for the police and have them come because it is their job. Bleeding calls for immediate examination by your physician.

There is naturally a certain amount of bleeding at the menstrual period; this is normal, but where there is deviation from normal there is something wrong and this must be looked into promptly. Then if there is any bleeding or any discharge between the periods you should have a careful examination. The person to consult is your family physician, and you should go to him, just as you would go, or should, immediately to your dentist if you had any trouble with your teeth.

When you consult your physician, sometimes he finds a tumor. That tumor is associated with bleeding, and many tumors today can be taken out without any serious trouble, whereas in years gone by nothing could be done. The womb has a tube coming off one side and a tube coming off the other side, and a pregnancy may develop in either of these little tubes. If you are examined promptly the pregnant tube is removed and you are all right. If it is allowed to go on the tube may break, because it is no bigger than a lead pencil, and in a short time fatal hemorrhage may take place. In the beginning it is just as easy to remove the tube as it is to remove an appendix.

In other cases the bleeding is due to ovarian tumors and these are removed. Sometimes it is due to inflammation and sometimes, unfortunately, cancer exists and that cancer may be in the neck of the womb. If it is way up inside the womb, we naturally will not be able to detect it by ordinary means.

Every now and again there are suspicious signs at the neck of the womb. There is a little bleeding. If the surgeon is not sure about it, he takes out a little wedge of tissue and hardens it in alcohol; from this, little thin shavings one five-hundredths of an inch thick can be made. These are stained and examined with the microscope. The appearance in disease is just as different from the normal as are two patterns of wall paper. As a rule, one can tell within twenty-four hours whether the tissue removed is malignant or whether it is not. If the cancer is in the body of the womb, one cures and examines the tissue in exactly the same way.

What are the results? When I was a student and when I was graduated I had never seen a womb removed for cancer. Way back in 1912, when we were feeling blue about not getting more patients well, twenty-six per cent.

of those operated on for cancer of the neck of the womb—those were my own cases—were perfectly well at the end of five years. In cancer of the body of the womb, if we can get the cases fairly early, we can save two-thirds to three-fourths permanently because in the beginning it is a strictly local process which later becomes disseminated.

All I want to urge on you is this: Whenever there is any bleeding that cannot be satisfactorily explained, go to your family physician, and if he cannot find out, he, being the policeman, will call in the detective department and get down to rock bottom and give you relief. Sometimes the cause will be cancer. If it is, the sooner you have it out the better. If it is not, some other treatment may be necessary and your mind will be relieved of the heavy burden of thinking that you might have something malignant.

I jotted down just a few lines here in connection with health examinations, in which Dr. Bloodgood and I are also deeply interested. I will give you just a page or two in closing.

Every now and then a factory shuts down to take stock and to see that the machinery is overhauled and in good condition. Engines at the end of the run are carefully examined to see that no flaws exist. At division points the wheels are tested for imperfection and the journal boxes inspected. Automobiles are turned in every 500 to 1000 miles to see that they are in good condition and in order that the oil may be changed. We should, in like manner, have our bodies overhauled at regular intervals. If there is a sudden break in our machinery the doctor is at once called and we are sent to the hospital. There may be some flaw in our frame, an invisible crack in the machinery, that can be detected only by the physician. The presence of adenoids and diseased tonsils in a child may in due time lead to permanent trouble. The parents, should have the physician determine whether an operation is necessary or not.

If a rash develops, professional advice should be sought at once. Delay might be dangerous not only to the child but also to the community.

Slight injuries to the hands or feet, particularly if any dirt has been carried in, should be treated by the physician. He alone can determine whether there be danger of lockjaw or not.

Let me tell you about an appalling catastrophe in Baltimore years ago on the Fourth of July when numbers of boys were playing with toy pistols. They were faulty pistols. Forty of the boys got little scratches on their hands and developed lockjaw. Thirty-nine of the forty died. That was years ago. If you

would read the *American Medical Journal* to-day you would find that after the Fourth of July scarcely any children die as a result of lockjaw. They are given tetanus antitoxin as a routine procedure at the time the wounds of the hand are dressed.

Have your human machinery examined and tuned up every six months or every year at the outside. Remember if your house catches fire and the firemen do not get there until the whole house is ablaze the house is of little value after the fire has been put out. Have your disease checked when it is limited to one room. Have yourself examined carefully the minute you detect any bleeding that is abnormal.

One thing in conclusion: This profuse bleeding that is supposed to occur at the change of life is not normal, and should always without fail be carefully looked into.

20 East Eager Street.

THE ALIMENTARY TRACT IN PULMONARY TUBERCULOSIS*

JOSEPH W. LARIMORE, M.D.

ST. LOUIS

The importance of adequate gastro-intestinal function in the tuberculous subject is accepted. Various observers have differently estimated the influence of impaired alimentary function upon the prognosis in pulmonary tuberculosis. All admit the gravity of any alimentary complication.

The tuberculous subject may have had, may have, or may acquire any alimentary disease. Such disease occurring prior to the pulmonary tuberculosis may have been a factor in the renewed activity of the tuberculous infection which is common to adults. Primary intestinal tuberculosis is of interest in any study of tuberculosis, but most generally it is discovered and approached as a direct gastro-intestinal problem. Its occurrence in the United States is extremely rare and then mostly in children. Its rarity is such that in the consideration of differential diagnosis of simulating alimentary lesions, the probability is in favor of malignancy even in young individuals. The subject is therefore narrowed to the alimentary tract and its function in subjects of pulmonary tuberculosis.

The stomach may be said to show only functional disturbances, either intrinsic or reflex. Its involvement by the tubercle is exceedingly rare. The impairment of gastric physiology results from the temperature, atony, reflexes from the chest, autonomic imbalance, disturb-

* Read before the Trudeau Society of St. Louis, December 8, 1927.

ing drugs, coughing irritation, and from dilatation by overloading. These effects may be subclinical, or manifested only by anorexia. They may be evidenced by nausea and vomiting.

The effect of high body temperature upon the stomach is to suppress its activity generally. There results a loss of appetite, diminution or suppression of secretions and, many times, nervous irritability which will produce a morning nausea, often with vomiting. The hydrochloric acid secretion is especially suppressed during fever. The craving of febrile patients for sour foods is a characteristic result. This craving and the tolerance for acids is a safe clinical guide to the use of those foods and of hydrochloric acid. Atony or hypotonicity of the stomach with attenuation of its wall is an accompaniment of all debilitating disease. In simple inanition, either complete or partial, the stomach tissues lose in volume in proportion to the body generally. This must be considered in association with the bodily wasting of tuberculosis. Such a simple maneuver as the right-sided recumbent position, adding gravity to peristalsis, will assist the attenuated gastric musculature. There results in toxic and febrile conditions a disturbance of autonomic imbalance which varies in patients directly with their individual constitution as between those of the sthenic bodily habitus and those of the asthenic habitus; and also as between blondes and brunets. One of the most striking manifestations of this autonomic imbalance is the gastrocolic



Fig. 1. Characteristic picture of bowel in advanced ileocecal tuberculosis with slight amount of barium in stomach at 6 hours, the ileum filled, atypical, and scant filling of the cecum with deformity and with barium already filling the rectum.



Fig. 2. Barium enema in early tuberculosis with definite irritability of cecum demonstrated in the fed test. Clinical findings inconclusive.

reflex which will be discussed below. The retching and vomiting resulting from coughing paroxysms are perhaps among the commonest and also the most difficult to control of all of the gastric manifestations in tuberculous patients. Control of the cough is the primary objective in its treatment. Dilatation of the stomach,—partial! usually and infrequently complete—is a disastrous complication for tuberculous subjects. Partial dilatation is somewhat more frequent than is generally realized. It is relative to the atony and atrophy of the stomach and to the degree of indiscriminate forced feeding. It may be manifested symptomatically by nausea and vomiting, characteristically occurring as a cumulative effect late in the day. It is obvious that the common symptoms of disturbed gastric function—bloating, nausea, vomiting, and belching—may be evidences of various and mixed physiological impairments. These gastric manifestations are of utmost importance to the tuberculous patients; however, the fact that they are almost always functional, and that the direct involvement of the alimentary canal by the tubercle is limited to the intestinal segments, has directed an undue portion of our attention to this latter phase of the subject.

Intestinal disturbances in tuberculosis should be thought of from two viewpoints: first, that of the intestinal symptoms in pulmonary tuberculosis and, second, that of the symptoms of true intestinal tuberculosis. The former are the functional derangements analogous to the functional derangements of the stomach; the second are the direct involvement of the intestinal canal by the tubercle. Constipation is the



Fig. 3. Barium enema in the same case as Fig. 2 eleven months later showing extreme irritability and nonretention of cecum. Clinical signs conclusive.

most frequent intestinal symptom in the tuberculous subject. Constipation is exaggerated because of the basic treatment by prolonged and complete bodily rest. It affects the patient's general well-being, diminishes the appetite, and disturbs the higher alimentary functions. It needs very careful attention. Too often this is given by laxative drugs. Observations made at the Koch Hospital¹ several years ago, when all laxative medicines were discontinued and oil preparations and bran foods introduced, showed a correction of constipation in almost all patients. Those failing to respond were subjects having marked redundancy of the distal colon or having an exaggerated general colonic hypotonicity. Associated with the delayed motilities of the intestinal tract are many indefinite symptoms, such as bloating, abdominal gas, sometimes real distention, and, at times abdominal cramps. These being also symptoms of true involvement of the tract they are difficult to evaluate properly. Diarrhea is a very serious disturbing symptom. It must be considered that diarrhea has many other causes than ulcerative processes. Chief among these in the tuberculous patient, is gastric achlorhydria and an exaggerated gastrocolic reflex. This reflex of increased colonic peristalsis immediately following gastric ingestion partly accounts as a normal mechanism for the usual evacuation of the colon following breakfast promptly. It may be exaggerated in vagotonia to the point that each gastric ingestion will cause a defecation. This is characteristic of the effect of any long continued toxic debility and is not the effect of fever per se.

It may occur in any chronic purulent infection. Fortunately, it is rather promptly relieved if not entirely corrected by the use of belladonna.

The symptoms of the alimentary localization of tuberculosis include pain, constipation, diarrhea, nausea and vomiting, palpable tenderness, and the exacerbations of systemic symptoms. The fact that the localization of tuberculous involvement centers about the ileocecal valve gives a characteristic tendency to the symptoms of this involvement. The earliest symptoms are with difficulty, if at all, distinguished from manifestations of functional derangements. Pain, in the nature of cramping, is perhaps the first and most characteristic of the definite symptoms of alimentary involvement. The pain will occur in the right lower quadrant, usually from one to three hours after meals. When persistently recurrent it is most suggestive and demands investigation for direct involvement of the tract. The pain varies in degree and significance in proportion to the degree and the mechanical characteristics of the involvement.

Constipation is one of the earliest accompaniments of alimentary involvement and results from an involvement of the bowel nerve plexus at the site of the lesion. This produces an inhibition of the bowel distally. Diarrhea supervenes when the irritability of the cecocolic segment obviates its reservoir and absorption functions. The liquid contents from the small intestines are immediately thrown into the transverse and distal colon. The fact that this content is thrown into the distal colon en masse increases the tendency to hypermotility through

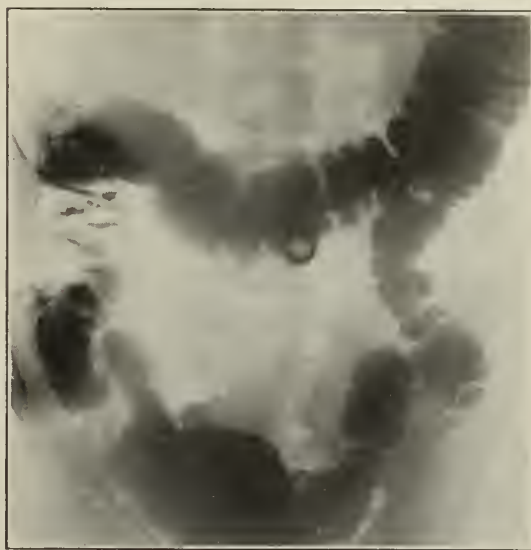


Fig. 4. Barium enema showing irritability and deformity of cecum in ileocecal tuberculosis, without sufficient palpable thickening or serosal change to cause the surgeon to resect. Appendix removed and showed tubercles. Patient subsequently died with advanced ileocecal tuberculosis.

the already hyperirritable colon. Once diarrhea has been initiated secondary effects common to any diarrheal status supervene. General nutrition of the mucous membrane of the bowel suffers. The conditions of avitaminosis supervene, secondary idiopathic infections occur and there is reason to think of the terminal stages of colitis in pulmonary tuberculosis as being more a chronic idiopathic ulcerative colitis² than a colitis due directly to the tubercle bacillus. Amyloid disease of the intestine common to various cachexias and characterized in its later phases by diarrhea, may be identical to this late pancolitis of tuberculosis. The other symptoms of alimentary involvement,—belching, distention, gas,—nausea, and vomiting,—are understandable as the secondary effects of the ileocecal impairment of function. Associated with these symptoms of ileocecal tuberculosis is the palpable tenderness very similar to the tenderness of subacute appendiceal disease, and in the later stages a palpable mass may be present. The rigidity of the abdominal musculature accompanies the late phases but is not necessarily present in the early phases. Certain systemic changes are associated to the onset of the alimentary involvement. Among these is noticed especially the increase of temperature without evidence of a pulmonary progression; the suspension of the cough is probably due to relative loss of fluid (dehydration) by diarrhea. While the usual site of the involvement is the ileocecal segment of the intestine, the rectum is sufficiently often involved to demand some attention. Stricture almost never occurs from tuberculosis. I have known of only one such case.

The mechanism of the tuberculous involve-



Fig. 5. Barium meal observation at 24 hours demonstrating the proximal colonic hypermotility masked by a rectal residual delay manifesting a clinical constipation and not a diarrhea.

ment of bowel in pulmonary tuberculosis has been much debated, and whether or not the intestinal localization is of direct luminal or of hematogenous origin seems to be well supported on either contention by a great deal of experimental observation. I have been unable to understand, as a usual method, any other than the direct localization of the bacillus from the lumen of the bowel into the bowel wall. It would seem that the functional adequacy and nutritional status of the tract was the determining factor in this. It is accepted that the digestive adequacy as revealed by the hydrochloric acid of the stomach is primary in protecting the tract from infections.³ It is stated that the danger from swallowed bacilli is in proportion to the lowering of acid secretion.

The nutritional status of the mucosa is of great importance. This suffers very early in any dietary inadequacy or imbalance. The dietary balance of vitamins is of primary importance. The experimental observations on this are well known and convincing. Intestinal secretions fail in avitaminosis, and the work of Grant⁴ shows the greatly increased permeability of the mucosa to bacteria in the early stages of vitamin malnutrition.

Secondary tuberculosis is characterized by subepithelial localization of the tubercles and this supports the conception of the luminal source of the bacilli and of the permeability of the mucosa. These submucous tubercles coalesce and open as ulcerations of the mucous coat. This type of tissue change is to be contrasted with the hyperplastic type of primary tuberculosis where there is tuberculoma formation with little ulceration.

These different tissue reactions which are fairly characteristic of these two types of tuberculosis seem to be definitely related to the different immunity reactions of the individuals: one occurs in the presence of active pulmonary tuberculosis and the other without other active tuberculous process. Stenosing tuberculosis of the intestines accompanies the tuberculoma or the transverse ulcer of an involved Peyer's patch. Both are more often primary tuberculosis. The differential diagnosis of the tuberculoma of primary tuberculosis of the intestine is commonly between that and malignancy and the probability, even in young individuals, is in favor of malignancy.

The differential diagnosis of the stenotic lesion of the small intestine is between a tuberculous transverse ulcer and syphilis. Probability favors the former. The therapeutic indication for operative interference is the same and definite in any of these hyperplastic and stenotic conditions, and the diagnosis is conclusively determined after tissue is removed.

The clinical diagnosis of secondary intestinal tuberculosis is made by the definite physical findings and the roentgenological picture. There are few laboratory findings that are of determining value in the diagnosis, especially in the early phase. These findings all lend themselves to ambiguous interpretations. Even the findings of physical examination and of roentgenology do not show changes characteristic per se of tuberculosis and it is only that they are found in the presence of an open or active pulmonary tuberculosis that gives to them the almost conclusive presumption of tuberculous etiology. The appendix has had a debatable relationship to ileocecal tuberculosis and some have contended that the first localization of the tubercle was in the appendix. Pathological studies show very conclusive exceptions. However, the appendix is of great importance in alimentary tuberculosis. Tuberculosis sanatoria frequently contain cases of abdominal fistula which result as postoperative sequelae to appendectomy and due to the appendix inflammation being of tuberculous origin. Recently, in a case roentgenologically diagnosed as early ileocecal tuberculosis the surgeon could find no gross pathology other than in the appendix. The appendix histologically showed tuberculosis and a few weeks later the clinical syndrome was conclusive for involvement of the bowel. One of the cases previously reported⁵ showed no gross pathology and the resection was done on the X-ray findings alone. There was the first stage of submucous tubercles in the cecum and without appendiceal involvement.

There occurs as a manifestation of tuberculosis an abdominal syndrome, predominatingly of pain, which signals the onset of miliary tuberculosis. This in both the old and obvious tuberculous subject, and in the unknown and new tuberculous subject, presents a difficulty of diagnosis which is only solved by the subsequent demonstration of tuberculosis of the miliary type, fresh or superimposed, in the pulmonary areas. Two explanations of this abdominal syndrome are possible: first, that the active focus which has turned loose the tubercle bacilli is abdominal and produces symptoms by its own fulminant activity and, second, that the bacillary shower received in the abdomen has created a general tissue reaction giving symptom. This reaction soon becomes localized to the lymphoid tissue which gathers the bacilli and there occurs a tuberculous lymphadenitis of varying proportion in the abdominal and retroperitoneal lymph nodes. Miliary tuberculosis may give a septic temperature reaction and when there is an associated jaundice the syndrome of hepatic abscess is suggested.

Roentgenology holds an important position in the diagnosis or elimination of alimentary tuberculosis. Its clinical value is equal in both these considerations. Early tuberculous involvement of the bowel gives certain abnormal roentgenological reactions. X-ray observation shows, in secondary intestinal tuberculosis, alterations of the intestinal contour by filling defects and spasms and with associated disturbances of alimentary motility. Early secondary tuberculosis is more frequently localized in the ileocecal segment. The associated direct and reflex derangements of gastro-intestinal function as revealed by X-ray study are variable. There appears marked gastric motor delay with gastric hypotonicity, total intestinal hypermotility with complete evacuation of barium in from eighteen to twenty-four hours, or with barium in the distal colon or rectum at six hours in spite of a gastric motor delay, the result of cecocolic hypermotility. Gastric motility may be almost completely inhibited. The principal sign of ileocecal or cecocolic tuberculosis is the progressively increasing intolerance of the cecum to any content, which makes it nonretentive of barium. In the late cases with extensive ulceration this is readily demonstrated by any fed test or by barium enema and has been the classical sign of ileocecal tuberculosis, as independently observed by Pirie, and by Stierlin, whose name it bears. An earlier phase of this intolerance was demonstrated in our ulcerative cases by fluoroscopic observation and palpation. The irritability of the cecum at this very early stage, when its intolerance of barium is not so constant and absolute, can be demonstrated with fluoroscopic palpation. Palpation in these cases will, if the cecum contains any barium, cause the cecum and the ascending colon to promptly empty distally. The observation is



Fig. 6. Barium meal observation at 6 hours demonstrating irritability and hypermotility of cecum in cauliflower carcinoma of cecum. Young negro. Clinically indistinguishable from tuberculoma.

confirmatory of irritability when the cecocolon will still show a retention of barium. When the cecum is casually empty it will in further study negative the suggestions of involvement. In all cases peristalsis in the terminal ileum was secured by palpation resulting in its clearance into the empty and relaxed cecum which then with the ascending colon contracted and propelled the barium mass distally. The cecocolon then remains in spasm. Further peristalsis of the ileum cannot soon be elicited. This inhibition in the ileum explains the frequent observation of a failure of small intestinal clearance (hypomotility) into the cecum at the six-hour period although obstruction does not exist. Emptying of the cecum following its palpation was observed in other cases than in these cases of ileocecal tuberculosis, but only in the presence of organic pathology, although palpation to determine cecal mobility and appendiceal tenderness is a routine maneuver. Clinical evidence of pulmonary tuberculosis increases largely the possibility of the abdominal lesion being tuberculosis.

The treatment of alimentary tuberculosis and of the alimentary canal in pulmonary tuberculosis is in large part a symptomatic treatment. The tuberculous involvement of the alimentary canal has been approached surgically and, more recently, the efficacy of ultraviolet radiation has been emphasized and is of very great help and usefulness. That either approach is the only method of choice I do not believe tenable. The degree of the involve-

ment, the character of the patient's immunity or his reaction to his infection both pulmonary and alimentary must determine the resort to these two methods. The hyperplastic and stenosing lesions need surgery. The symptomatic treatment of the canal attempts to allay irritability, to give opportunity for regular function without overloading and to provide adequate colonic evacuation.

The gravity of alimentary tuberculosis to the patient lies chiefly in its interference with nutrition. The nutritive status of the tuberculous patient is of first and fundamental importance. Subnutrition is often the precursor of the tuberculous activity in many individuals. It is the starting point for a vicious circle leading to avitaminosis, impairment of alimentary secretion, permeability of the alimentary mucosa, subepithelial localization of tubercles, and the resulting nutritional interferences. The malnutrition has caused the involvement of the alimentary canal. This completes the vicious circle and constitutes a disastrous complication in the disease. Very few patients recover after the involvement of the alimentary tract. It is for this reason that attention to the varied and multiple factors of nutrition is the chief hygienic and prophylactic measure against tuberculosis. It stands first in the interdependent program for the treatment of tuberculosis. In the presence of alimentary complications adequate nutrition must be attained and maintained to save the patient. Forced nutrition or high caloric diets have been constantly emphasized. The balance of these diets has been greatly neglected. Adjustment to the motor capacity of the stomach is overlooked. A half loaf is better than none. The small meal which the stomach will retain must often be accepted rather than the forced meal which may be rejected. The balanced diet, with a high balanced vitamin content is important in preserving or restoring the epithelial integrity of the tract. Our knowledge of the vitamins and of their clinical manifestations has been restricted chiefly to the extreme phases of avitaminosis. However, the aid secured from cod-liver oil had been definitely established by empirical medicine before the discovery of vitamins. Even the experimental study of avitaminosis has been largely based, in the past, upon the resulting lethal state and the effect of low vitamins has even been confused with general inanition. It seems plausible and there are a great many clinical occurrences which support the idea of a preceding subclinical status of avitaminosis. This status is many times determining as to the resistance of the body. "Die Darmschleimhaut des Tuberculösen ist vielleicht geneigter, die Ansiedlung



Fig. 7. Small intestinal pattern in tuberculosis (transverse ulcers) of Peyer's patches showing enormous localized ballooning of intestines proximal to resulting stenosis. Three markedly stenotic lesions found at operation.

der Bacillen zuzulassen, als die Darmschleimhaut des Gesunden."⁶

In addition to the other common measures of treatment including the gastric, the alimentary and the autonomic system sedatives, and the intestinal antiseptics, so-called, the attention to diet before and following the tuberculous involvement of the alimentary tract seems to be of primary importance. The diet must be quantitatively fractionated to the gastric motility and its balance must be maintained with reference to its vitamin qualities in order to preserve the resistance and function of the alimentary mucous membrane and thereby prevent the localization of the bacilli.

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MULTIPLE COLONIC POLYPI WITH TWO ENGRAFTED CARCINOMATA*

REPORT OF A CASE

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AND

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Multiple polyposis of the large intestine is comparatively uncommon. These tumors are renowned for their tendency to undergo malignant transformation. It has been our good fortune to observe one case in which two distinct polypi, widely separated from each other, became carcinomatous. The first tumor, in the sigmoid flexure, was removed. The patient had an excellent recovery and no recurrence. The second malignancy occurred in the splenic flexure three years later. This tumor perforated causing a fatal peritonitis.

REPORT OF CASE

Case History.—The patient was a white man about sixty-eight years of age, who entered St. Luke's Hospital September 2, 1924, complaining of constipation. He was unable to have a good bowel movement, passing only watery mucous two or three times a day and at times some bloody mucous. He had lost ten pounds in weight. The trouble started fifteen years ago, he said, when he had been consti-

pated for a considerable time but he had been symptom free, with only occasional periods of rather severe constipation, until a short time prior to entry in the hospital.

Physical examination showed a fairly well nourished man having marked dental sepsis and piles. Otherwise nothing of interest was elicited. The abdomen was soft; no masses were palpable. X-ray examination showed an obstruction at the junction of the pelvic and descending colon through which the opaque media passed quite slowly as a thin stream. This constricted area was quite irregular and the middle third of the sigmoid was thick. Laboratory examination showed 5,136,000 red cells, 80 per cent. hemoglobin, 11,800 white cells, of which 78 per cent. were polymorphonuclear neutrophils. No blood was found in the stool on repeated examination. A diagnosis of carcinoma of the sigmoid colon was made and he was operated upon September 4, 1924.

Through a left rectus incision a loop of sigmoid was delivered in the wound and a first stage Mikulicz operation was done. Two days later the loop of bowel was removed by cautery and he left the hospital in good condition several days afterward. The tumor mass removed was found to be an adenocarcinoma that was limited by the serosa, apparently not invading the surrounding tissue nor metastasizing.

He returned on October 22, 1924, when the third stage of the colostomy was done, the bowel being clamped at that time. Shortly the colostomy opening closed and he remained entirely well until December, 1927, when he again entered the hospital with an obstruction. The present trouble began three weeks prior to his entry December 27, 1927. At this time his bowels had not moved for seven days and many enemas produced no results. His abdomen was distended and tympanitic and at this time his hemoglobin was 80 per cent., his red cells 4,310,000, white cells 6,500.

January 2, 1928, he again underwent an operation. A colostomy was done in the transverse colon and enterostomy in the small intestine. During the operation hard nodules were palpated in the descending colon. He was in extremis at the time of operation and he died shortly afterward with severe pain, nausea and vomiting.

Autopsy.—The body was that of a poorly nourished white man, about sixty-five years old, showing two colostomy drainage wounds in the left lower abdominal quadrant. Upon opening into the abdomen it was found partially filled with a fecal fibrinopurulent exudate. The colostomy stomata in the transverse and descending colon were both patent. The intestines were injected and edematous and the large gut was widely dilated. On the transverse and descending colon fine fibrin was sprinkled over the serous surface. In the splenic flexure there was a hard indurated mass obstructing the lumen of the intestine. The abdominal organs were otherwise in normal relationship. Upon opening into the lumen of the large intestine it was found to contain a very large number of small adenomatous polypi extending from the cecum to the rectum. The smaller polypi were attached to the wall of the intestine by very thin pedicles in many cases. These tumors varied in diameter from 5 mm. to 4½ cm., the largest being in the transverse colon. The larger ones had rather soft bases and a cauliflower like appearance. They were soft throughout and showed no evidence of malignancy. In the splenic flexure there was a hard carcinomatous ulcer, which, when flattened out, measured 5½ x 7½ cm. It showed rolled, overhang-

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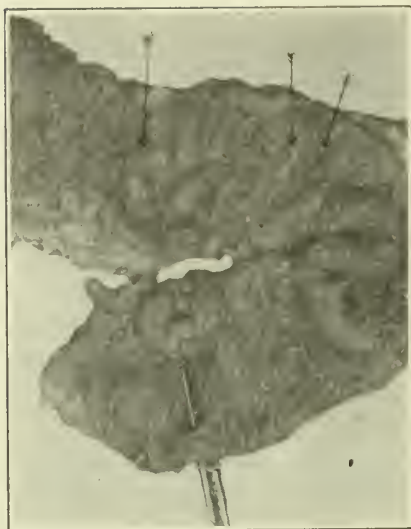


Fig. 1. Ascending colon. Scissors show a large benign polyp. Arrows show other smaller polypi scattered over entire large intestine.

ing edges and had the dense indurated consistency of carcinoma. At one point immediately adjacent to the spleen it showed a perforation with a localized area of necrotic peritonitis about it. This area measured about $4\frac{1}{2}$ cm. in diameter and subsequent rupture had taken place from this pocket into the peritoneal cavity and the point of rupture could readily be traced. The wall of the large gut was thickened throughout its entire length. The other organs showed nothing of particular interest except fatty changes in the liver and kidneys. The prostate was moderately hypertrophied and the bladder was somewhat trabeculated. One small typical cavernous hemangioma was found in the liver.

Histological Pathology.—Many sections were taken through the carcinoma and the varying sized polypi. The former showed a wild, atypical, infiltrating growth of an irregular papillary type with invasion of the deeper layers of the gut by these atypical cells. There was also considerable secondary infection. The cells of the tumor varied in size and shape and were forming irregular acini lined with from one to four or five layers of irregular cells. Many of these showed intra-acinar bridges. There was some necrotic granular debris in many of these acini. The stroma was in places quite abundant and the gut wall showed deep invasion, leukocytic infiltration and fibrosis. Here and there large circumscribed areas of pus cells with disintegration of the gut architecture were found.

The largest of the benign polypi showed a rather abrupt change from normal epithelium into polypoid overgrowth. The bases of the big ones were comparatively wide and the stalk was covered by hyperplastic columnar epithelium showing a somewhat more basophilic character than that in the normal mucosa. There was also some epithelial proliferation and glands of rather large caliber were often seen. Some cystic areas were likewise encountered lined by flattened cuboidal cells. The stroma of the polypi showed a rather low grade mononuclear infiltration in places.

The very small tumors presented hypertrophy and proliferation of the mucosa with thickening of the submucosa which was seen growing out to form

a small broad stalk. Even in some of these smaller adenomata some irregular cell change was occasionally encountered.

ETIOLOGY AND PATHOGENESIS

Much has been said regarding the etiology of these tumors. Their malignant transformation brings into account the whole question of the formation of a malignant neoplasm from one which was formerly benign. This latter question has been subject to much clinical and experimental investigation. Regarding the etiology there are two outstanding theories. The first assumes that these tumors develop from areas in the large intestine which are chronically irritated. In substantiation of this hypothesis the following evidence has been offered. These adenomata are found in chronic inflammatory areas and at the bases of some of them the ova of pin worms have been discovered. The presence of mononuclear leukocytes and other inflammatory cells point to a chronic irritative basis. Cases of schistosomiasis with malignancy have been seen wherein the parasite was apparently the irritative factor. Again we find these tumors appearing in areas of the gut most subject to irritation, as the rectum, cecum, sigmoid and the flexures, and the development of these tumors in cases of long standing ulcerative colitis suggests an inflammatory origin. The other theory holds that the primary change is epithelial and assumes the inflammatory features to be secondary. This was suggested by the fact that the mucosa adjacent to the tumors often shows no inflammatory change. Again histologically it is frequently easy to demonstrate the transition from normal to adenomatous hyperplasia.

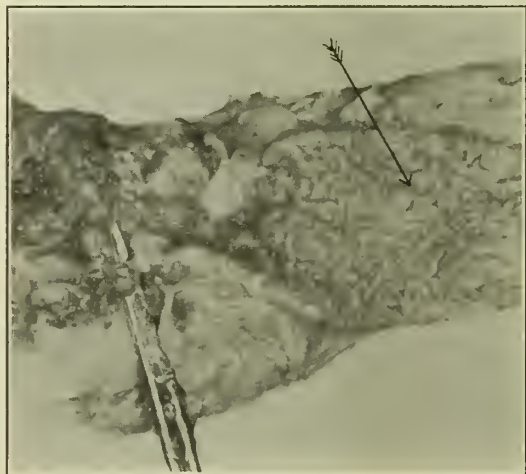


Fig. 2. Carcinoma in splenic flexure. Scissors show point of perforation of neoplasm. Arrow shows one of the small polyps.

The pathogenesis has been summed by Saint who thinks that these tumors begin through an hyperplasia and hypertrophy of the epithelial elements with submucous thickening, the pedicle being formed as the tumors become progressively larger by the constant pulling exerted by the stream of intestinal contents and the peristalsis of the gut. He also feels with most observers that the adenomata are merely a stage in the development of true carcinomata and considers them all precancerous. Many investigators have found definite malignant transformation in grossly benign tumors. We can also see here a close analogy between the malignant transformation of these tumors and experimental tar cancer. We have repeatedly seen tar papilloma of squamous epithelium in mice which, with the continued use of the tar, would become malignant. If at a certain stage the tar applications were suspended malignancy again would result without the continued irritation. This analogy has been carried even further by Bonne who has observed papillomata of the intestinal tract of mice develop into malignancy by the ingestion of tar. In some of the tumors observed in our case we found areas of atypical growth of the glandular epithelium with variation in cell type and other histologic evidence of malignancy which as yet showed no actual invasion and it was easy to trace this from the adenomatous hyperplasia.

TREATMENT

The manifest dangers of this condition are hemorrhage and malignant transformation. A large number of palliative measures have been suggested, such as radium, cecostomy, and appendicostomy with irrigations. None of these has apparently been of much avail. Recently Coffey has resected the entire colon and his patient is still living after four years. It may be said that any treatment is of questionable value except the latter, perhaps, and it is fraught with enormous technical difficulties.

CONCLUSIONS

A case of multiple polyposis of the large intestine with two separate engrafted malignancies is reported. The most plausible theory regarding the etiology and pathogenesis seems to be that these tumors develop from some chronic irritation. These benign tumors eventually undergo malignant transformation. No treatment now is entirely satisfactory. Complete resection of the entire colon has been tried with some good results.

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OVARIAN AND HYPOPHYSEAL HORMONES IN THE URINE DURING PREGNANCY*

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It would be tempting to speak to you at length on the truly astounding progress more recently made in our knowledge concerning ovarian function. Within the limited time allowed me this obviously becomes impossible. I shall, therefore, confine myself to the effort of explaining, in as simple a manner as possible, the development of our present understanding of the activity of the ovaries and the hypophysis during pregnancy.

Stockard and Papanicolaou as well as Long and Evans had ascertained that in certain small rodents the morphologic appearance of the vaginal discharge passes through characteristic changes from the beginning of one estrual cycle to the onset of the next. Further investigations of this remarkable phenomenon by Allen and Doisy culminated in one of the most significant contributions to the complex problem of endocrine function. They discovered that an extract made from follicular fluid when injected into a castrated mouse promptly alters the morphologic picture of its vaginal discharge from that typical for the state of rest to that typical for the beginning of estrus. Thus they were the first to supply a fairly simple and admittedly specific biologic test for the estrus-producing hormone secreted by the ovary. Indeed, they succeeded in determining a standard unit representing the smallest quantity of this specific ovarian hormone capable of producing in the castrated mouse this characteristic desquamation of the vaginal epithelium.

We can easily appreciate the far-reaching importance of the work of Allen and Doisy if we remember that they have enabled all the numberless investigators succeeding them in this field of research not only to ascertain *qualitatively* the presence of this estrus-producing hormone but actually to determine *quantitatively* the amount of this hormone contained in any given substance.

From then on new and most astonishing discoveries followed each other in rapid succession. The chemic and biologic identity of incretory substances extracted from follicular fluid, corpus luteum and placenta was definitely established. In 1925, Robert T. Frank discovered the presence of this

* Read before the St. Louis Medical Society, October 23, 1928.



Fig. 1

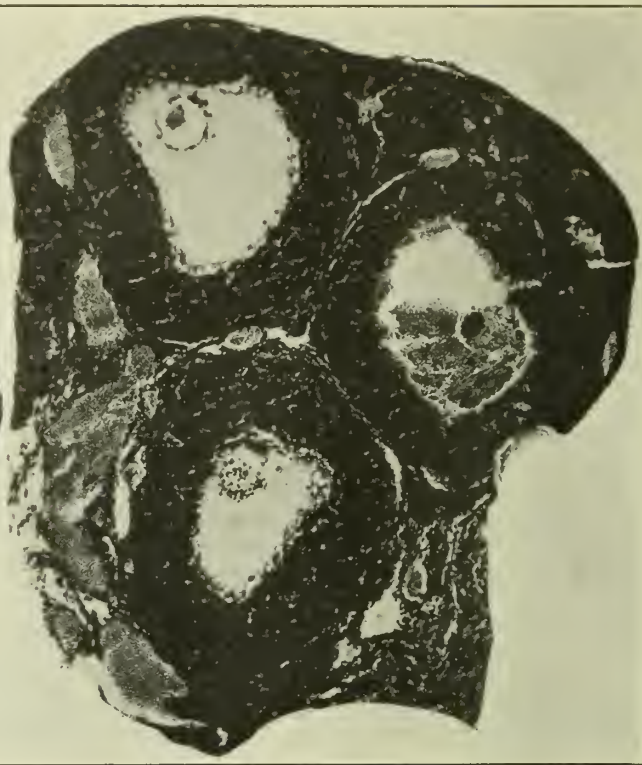


Fig. 2

same hormone in the blood of woman and ascertained that its concentration in the blood varies in the different phases of the menstrual cycle. In one of his several papers on this subject Frank revealed the noteworthy fact that the sexual hormone level of the blood rapidly rises during the progress of pregnancy. At approximately the same time the identical facts were established by German investigators. With admirable intensity German investigators have continued these studies and all the newest discoveries must be credited to the remarkably ingenious and careful work of men like Loewe, Voss, Fellner, Laqueur, Mahnert, Siegmund and others, but most of all to Zondek and Aschheim.

Zondek and Aschheim made the surprising discovery that this estrus-producing hormone is eliminated in truly enormous quantities in the urine of pregnant women, many thousand times the amount eliminated at other times, 6000 to 10,000 mouse units in every 1000 cc. of urine. Quite recently Dohrn and Faure reported that 1000 grams of dried feces of women in advanced pregnancy contain up to 3000 units of this ovarian hormone. This hormone has been found to be present in the amniotic fluid, in the blood of the new-born, in saliva as well as in breast milk. Appreciating this steady outpour of vast quantities of this sex hor-

mone in urine and feces during the many months of pregnancy, one might gain some, though probably still inadequate, conception of the abundant production of this potent substance by the ovaries; and one might feel justified in smiling at the good and occasionally enthusiastic reports concerning results obtained with the injection of a few mouse units of some ovarian extract in the relief of various conditions, especially during pregnancy, rather guilelessly ascribed to a deficiency of ovarian incretory function.

Injection of this estrus-producing ovarian hormone, now so easily obtainable in large amounts from the urine of pregnant women, produces in the castrated mouse, as already mentioned, the active desquamation of vaginal epithelium characteristic for estrus. If such injections are repeated they lead to a sort of permanency of this state of desquamation and gradually as well to a hypertrophy of uterus, tubes and the vagina. However, repetition of these injections in infantile or senile mice was never observed to start or restore that typical sequence of follicular changes comprised in the process of ovulation. Zondek and Aschheim drew from this striking fact the only logical conclusion. If the female sexual hormone influences only uterus and tubes but never the ovaries themselves, then necessarily it must be some other substance which primarily in-

cites the normal cyclic activity of the ovarian follicular apparatus. There followed many series of most careful experiments with injection of extracts from glands and other tissues and with transplantation of glands and other tissues. Thus Zondek and Aschheim finally were able to announce one of the most important discoveries of recent endocrine investigations. The anterior lobe of the pituitary gland and no other tissue of the body supplies that hormone which initiates all follicular activity and starts the complete ovulation cycle. In analogy with the pioneer work of Allen and Doisy, Aschheim and Zondek elaborated not only a specific biologic test for the anterior pituitary hormone but also a mouse unit for the fairly accurate estimation of the amount present in a given substance. I ask your indulgence for stating in this connection that Zondek was unable to discover any trace of this hormone in any preparation on the market.

We must today accept as an indisputable fact that the anterior lobe of the hypophysis is the motor which starts all ovarian activity; that this organ represents a sort of superimposed general sex gland since it controls not only ovulation and thus the production of the mature ovum but also governs the output of the estrus-producing ovarian hormone which through its growth stimulating effect on uterus and mammae is requisite for reproduction.

During pregnancy this anterior pituitary hormone is poured out in a continuous and heavy stream. Let me quote the following figures from one of the papers by Zondek and Aschheim: "Within the first and eighth week of pregnancy 1000 cc. of urine contain between 300 and 600 mouse units of ovarian hormone but more than ten times the amount of anterior lobe hormone, namely 5000 to 6000 units. In the last trimester of pregnancy there are in every liter of urine 6000 to 10,000 units of ovarian but only 2000 to 3000 units of anterior lobe hormone."

These figures express two very important facts: (1) the anterior lobe and the ovarian hormones are eliminated in large quantities in the urine during pregnancy, but (2) the peak of the output of the anterior pituitary hormone is reached within the first and second week after nonappearance of the expected menstruation, i. e., after implantation of the fertilized ovum in the uterus, while the larger amounts of ovarian hormone can be discovered only after the twelfth week of pregnancy. Zondek and Aschheim immediately realized the great practical impor-

tance of this phenomenon as a diagnostic test of pregnancy in its earliest stages. A year or two ago a similar diagnostic test had been evolved based on the presence of ovarian hormone in the urine but the distinct and obvious advantage of the anterior lobe hormone for such a purpose lies not only in its much earlier appearance but also in the fact that large quantities of the follicular hormone are often found in the urine of patients suffering from diseases associated with a disturbed ovarian function, especially when the latter expresses itself as an amenorrhea. And here again I might parenthetically recall to your mind those glowing reports of prompt relief of amenorrhea by the injection of a few mouse units of some ovarian extract.

I shall conclude this brief and necessarily incomplete survey of this splendid advance in our knowledge concerning ovarian and pituitary function during pregnancy with a short reference to Zondek and Aschheim's pregnancy test. Repeated injections of small quantities of urine voided during the first few weeks of pregnancy produce in an infantile mouse within 100 hours two absolutely characteristic, morphologic reactions, viz., (1) the formation of minute intra-follicular hemorrhages, and (2) the development of lutein cells.

This test is based on an entirely new principle, namely, the biologic proof of the presence of anterior pituitary lobe hormones in the urine. The test is fairly simple, at least as far as biologic tests are concerned, and is apparently very reliable. The last published statistics of Zondek and Aschheim cover 700 such tests with but 21 failures.

Dr. Liese and Dr. Auer have been working with this test for the past six weeks in the laboratory of the Jewish Hospital. I owe to their courtesy the two illustrations here presented. The marked effect of the anterior lobe hormones eliminated in the urine of a pregnant woman can easily be appreciated by comparing them. Fig. 1 shows the ovary of an infantile mouse, about three weeks old and weighing 8 grams. Fig. 2 represents the ovary of a sister of the same litter, of identical weight, after the injection of minute quantities of the urine of a pregnant woman. Both pictures are photographed under the same magnification and thus prove the enormous follicular development brought about within 100 hours in this test.

INTUSSUSCEPTION*

ROLAND HILL, M.D.

ST. LOUIS

This condition may occur in any period of life but is exceedingly infrequent in the adult. It usually occurs in young babies and is one of the most serious diseases with which we are familiar.

The pathology often found in these cases at operation seems out of proportion to the high mortality commonly reported. In Birgfeld's¹ series of fifty-one cases in which operative procedure was necessary, the mortality was 45 per cent. when surgical intervention was instituted within twelve hours; 80 per cent. when relieved by operation within twenty-four hours; beyond this the mortality was 100 per cent. Coffey,² in 1907, stated the mortality was from 70 to 90 per cent. Kimpton is quoted as stating that among the sixty-three cases operated upon at the Massachusetts General Hospital between 1908 and 1917 the number of deaths amounted to 49 per cent. In reviewing the literature the work of Hipsley³ stands out above all others. His fifty-one cases without a death when operated upon within the first thirty-six hours is indeed a brilliant achievement. In the three cases where resection of the bowel was necessary, however, only one recovered. Brown⁴ reports a mortality of 64.5 per cent. among the thirty-one cases admitted to the Children's Hospital in Philadelphia from 1915 to 1924. Barrington-Ward⁵ reports a case of recurrent intussusception in a female child, aged six. This child was operated upon four different times. The last time some small tumors were felt inside the bowel and 10 inches of bowel were removed. These tumors were found to be adenopapilloma. The child has since remained well.

The high mortality in cases of acute intussusception in children stands out as a challenge to the pediatrician as well as to the skill of the surgeon. In my judgment the cases as a whole are being recognized earlier, resulting in fewer deaths.

The basis of the present paper is an analysis of a small series of twenty cases operated upon by the author chiefly at Bethesda Hospital within the last ten years. (Table 1.) We must be aware of the dangers of drawing definite conclusions from so small a series.

Table 1. *Percentage of Mortality*

Duration of Illness	Lived	Died	Per Cent. of Mortality
Less than 24 hours	8	0	0
24 to 48 hours	3	3	50
3 to 4 days	3	2	40
8 days	1	0	0
Total mortality (20 cases)			25

* Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

The etiology of intussusception is unknown. Several theories have been advanced. In our experience 75 per cent. occur at from six to twelve months of age. The youngest was six weeks; the oldest twenty months. The majority were breast fed infants, previously healthy. Although over 50 per cent. of the cases in this series occurred in the months of June and July, in no case was there a primary enteric infection. The disease is sporadic. It is a point of interest that in one case a brother and a sister had died of acute intussusception. Sex does not seem to play a role. In this series there were nine male and eleven female. As to type, the majority were ileocolic. This may lend some strength to the theory advanced by Perrin and Lindsay⁶ that the projecting ileocolic valve, being rich in lymphatics, would become congested following any digestive disturbance and might act as an irritant causing local muscle action. Purely enteric and colic intussusceptions do occur, however. In several instances the appendix was pathological, either showing chronic trouble or being acutely inflamed and drawn into the telescoped mass. The appendix may be a factor in the more frequent occurrence of the ileocolic type of intussusception.

As a rule, the diagnosis of intussusception should offer little difficulty. In this series, pain, vomiting, blood in the stool, and palpable tumor were present in a great majority of cases, where it was so stated in the history. Pain occurred in all cases. It is severe, with sudden onset and usually paroxysmal. The child may sleep between attacks and lead the parents to underestimate the seriousness of the condition. Again, the pain may be continuous, as indicated by constant fretting and constant restlessness.

Vomiting is mentioned in all cases except two in which no mention of vomiting is made, and one in which vomiting is stated as not having occurred. It usually increases with the duration of the disease and may be bile stained. Fecal vomitus was noted in only one case.

Blood in the stool was an almost constant feature it being stated as present in sixteen cases and no mention made in two. In no case was blood stated as not being noted. It is bright red and commonly occurs late, being preceded by thin stools mixed with mucus.

In this series a mass was palpated in 80 per cent. of the cases. In one case the history stated that no mass was palpated. In two cases the presence or absence of the mass was not mentioned. In three instances an anesthetic was used. My opinion is that under anesthesia the telescoped mass could be palpated in practically every instance and therefore it should be used when in doubt as to the diag-

nosis. The firm elongated mass is usually found above the umbilicus and may extend to the right or left.

Tympanitis was never marked and was usually absent. Muscle rigidity was noted in only two cases. The abdomen is usually soft and normal in appearance. Tenderness is most often absent. In the cases recorded the leukocyte count has ranged from 11,000 to 26,000. It is of no value in diagnosis. An abnormal emptiness of the lower right quadrant is often present.

Recovery among the eight cases operated upon within twenty-four hours of the apparent onset of the illness was 100 per cent., again emphasizing the value of early diagnosis. In the forty-eighth hour period three cases in six, or fifty per cent., recovered. One case that came within the three day period and recovered was the only one which had a rigid, tender, tympanitic abdomen; in this case approximately fifteen inches of the lower ileum and ascending colon were involved. The bowel showed considerable interference with circulation and a gangrenous area had to be excised.

There were five cases with a duration of approximately four days. Of these, two, or 40 per cent., died. It is only right to say that in two the intussusception was of the subacute type.

The case of eight days' duration is of exceptional interest. It was a female child, aged 14 months, in which there were coma and extreme prostration and a history of illness lasting eight days. She had fecal vomiting. Operation was thought to be almost hopeless. On opening the abdomen and in attempting to reduce the mass the cecum and ascending colon split open for about 5 cc. About eight inches of the terminal ileum and adjacent colon were found to be gangrenous. This area was completely resected. An anastomosis was not attempted at the time. The margins of the bowel were sutured together for a distance of about 3 inches and then sutured to the abdominal wall, making the ends extraperitoneal. A large tube was then inserted into each intestinal stump. At the end of twelve days the septum was clamped and the abdominal wound gradually healed. There was an uneventful recovery. It is well known that children do not stand resection well. The few isolated cases reported indicate that the vast majority die. Rischbeith⁷ in 1900 had heard of only three cases, to which he added another. Hipsley, of Australia, reports one recovery. Straus has been most successful; he reports four cases recovered.

In one case a very unusual condition occurred. The child had an intussusception in the ileocecal junction. This was about 12 cen-

timeters long but the intussusceptum was composed of an intussusception of the small bowel into itself. On examining the ileum further up another intussusception of small bowel into small bowel was found. This was the only case in which I have seen three intussusceptions in the same child.

The treatment of intussusception is essentially surgical. Attempted reduction by manipulation or water injections may prove effectual but should not be prolonged as the delay may prove fatal. Under light ether anesthetic an upper right rectus incision is made. The mass is usually partly reduced before being delivered into the wound. After reduction, two or three anchor sutures are placed between the ileum and the cecum, after the method of Gibbons, to guard against return.

The postoperative treatment is of great importance. Fluids are allowed by mouth and administered subcutaneously. For this we use Ringer's solution. A teaspoonful of castor oil is given in from six to eight hours. Opium derivatives are strictly forbidden. Chloral hydrate is valuable for restlessness. The toxemia is the element that kills. In the comparatively recent cases the temperature may run very high and a fatality result. We prevent this by high flushing of the rectum and colon with normal saline solution at a temperature of 80 to 85 degrees. This is a life saving procedure. Food is started in small amounts on the second day.*

CONCLUSIONS

My experience with this disease leads me to believe:

1. A very large percentage of these cases are overlooked and the diagnosis is never made.

2. The mortality varies inversely to the length of time after the onset of symptoms before resort to surgical measures.

3. The use of opium after an operation of this kind is a very grave error. Its effects are much greater than in the normal child and it will lead to death of many that would otherwise recover.

4. The high temperature following these operations is best combated by the use of high cooling enemas of water. For this purpose we use normal saline solution at 80 to 85 degrees and expect to get a reduction from 1.5 to 3 degrees of temperature.

5. In cases where resection is necessary we believe that it is better to leave the ends open after the method of Mikulicz than to attempt to do the primary resection. While our experience with this has been limited to but two cases it has been so satisfactory as to lead to the belief that many of these apparently hopeless cases can be saved. Further, in late cases

I believe that a modification of a Mikulicz will prove of great value.

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DISCUSSION

DR. THOMAS S. CULLEN, Baltimore, Maryland: I have nothing of special importance to say in this connection. I have not had nearly so many cases of intussusception as Dr. Hill, but there is one case to which I should like to refer. This was a case of the earliest intussusception I have ever seen and was reported by my resident, Dr. Karl Martzloff. There was marked thickening with a little indentation of the cecum, and there was induration all around it. Dr. Martzloff cut out the elliptical area with the depression and sutured.

I think Dr. Hill is to be congratulated on his percentage of recoveries—if I am not mistaken, seventy-five per cent. of twenty cases. His results are among the most successful on record.

DR. F. G. NIFONG, Columbia: There is something very peculiar about intussusception. About fifteen years ago I read a short paper before the Medical Association of the Southwest at Kansas City reporting two cases. (THE JOURNAL, 10:321, 1914.) It was rather strange that I should have two cases in this community so very close together. I had never before had a case and since the article was written I have never had another. I am not complaining for both cases made good recoveries and are now living. You see I have a one hundred per cent. record. They were ileocecal invagination in babies ten and eleven months old respectively.

The point in Dr. Hill's paper I wish to stress is the necessity for a very early diagnosis. In the first twelve or twenty-four hours the statistics are good but later there is rapidly increasing mortality. An Australian, Clubbe, had reported one hundred and fifty cases when I reported mine. His first fifty cases had fifty per cent. mortality but the last fifty was only about eight per cent., if memory serves. That was due to education, he said, being alert and making diagnosis early with early operation.

And the diagnosis is comparatively easy if one is only thinking a little. A baby with a locked bowel, a tumor, perhaps palpable, marked peristaltic waves, at first bloody mucus stools. Also the peculiar way the little patient tosses about the bed, twisting, turning and diving when the peristaltic wave is on. Indeed it is hard not to make a diagnosis when the picture is so graphic.

DR. E. E. MANSUR, Jefferson City: November a year ago in Milwaukee at the radiological meeting, Dr. Cole, of New York, and Walter Alvarez, of Mayo's, had collaborated, and showed moving pictures of intussusception. The cat is the only known animal, as I understand it, in which intussusception occurs as a regular routine. They had taken a good healthy cat's bowel under anesthetic and put it in sterile salt solution, at the right temperature and had taken moving pictures of the bowel in normal movements. Those pictures showed the intussusception just as in the human being except that it is not normal in the human being. Those pictures can be obtained on a small rental basis, five dollars per day, from Eastman Kodak Company.

DR. B. L. MYERS, Kansas City: I don't know that intussusception is regularly routine in cats. I know intussusception occurs in dogs because I have seen it in my own experimentations.

I want to call attention to two things. It is a well known fact that it is the toxemia that kills in cases of intestinal obstruction. One of the things I want to call attention to is that it has been proven experimentally that end-to-end anastomosis causes secondary obstructions, to a degree at least. It is well shown by a number of experimentations that approximately sixty per cent. of the lumen of the bowel is obstructed by edema and the infolding of tissue after an end-to-end anastomosis.

Little children who have a small bowel in which intussusception occurs commonly have difficulty when they have had a resection. If we stop to think for a moment regarding the technic of an end-to-end anastomosis, the reason for continued evidence of obstruction of the bowel in these little patients becomes much more apparent. Let us remember when we place our first layer of sutures that the bowel will be approximately end-to-end. When we do the second, we turn the ends in. Should we do the third which has questionable value, we invert another layer of the bowel that makes a ring of tissue beneath our sutures and obstructs the bowel considerably. I know of a number of instances where end-to-end anastomoses have been used in adults with secondary obstruction great enough to produce vomiting and toxemia, so that intestinal drainage had to be established by putting in a jejunal tube after the anastomosis had been completed.

The second thing I want to mention is that a study of sixty-seven cases of intestinal obstruction which were cared for in St. Mary's Hospital in Kansas City, showed decided benefit by the use of saline solution, such as Haden and Orr advocate, about which so much has been written. The comparison of the statistics of one year with the year following showed a decrease in the mortality percentage of almost 15 per cent. The skill of the staff was as great in the first year as in the second and there was no important change in the technic they used. There was only one marked difference which we were able to find that might have made the change and this was the liberal use of saline fluids.

I know of one instance of an adult in which a secondary obstruction occurred after an anastomosis. Six thousand cc. of normal saline were used in twenty-four hours until the blood chlorids were brought to normal. The patient made a good recovery in spite of the fact that she had the two obstructions.

DR. ROLAND HILL, St. Louis, in closing: There are two or three points I want to emphasize. If we are going to save a case of intussusception we must not give an opiate after operation. If we give opium at this time we shall have a fatality.

Another point to remember in those cases that go less than twenty-four hours is that you can use a high enema of about 85 degrees, flushing every hour or two and bring the temperature down. This procedure will save a certain percentage of cases that you would otherwise lose.

The diagnosis is not always easily made. I had a case within three months brought to me too late for recovery. This was referred by one of our most careful and best pediatricians.

There is just one other point that I believe is of value. In cases that have gone pretty well to the questionable stage I believe a catheter introduced into the cecum carried up into the small bowel to allow of the escape of the toxic contents of the intestine will often be found life saving.

DIVERTICULUM OF THE CECUM*

CASE REPORT WITH OPERATIVE DIFFERENTIAL DIAGNOSIS*

JAMES R. McVAY, M.D.

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The purpose of this paper is to report a case of diverticulitis in a single diverticulum of the cecum and to discuss briefly a few observations

was negative except for the abdomen. There was only moderate distention. There was slight rigidity of the lower right rectus. In the right lower abdominal quadrant there was palpated a definite, fairly hard, tender mass about the size of an orange. It was rather fixed and its edges could be faintly defined. It seemed apparent that we were dealing with an appendix abscess.

Under ether anesthesia the abdomen was opened through a McBurney split muscle incision. There was no free fluid. The appendix was easily delivered. It showed only evidence of mild periappendicular inflammation, which was insufficient to account for the patient's condition. It was removed. On delivering the cecum, there was found, just above the ileocecal valve and on the anterior inner surface of the gut, the mass we had palpated. It measured about one and one-half by two by one inches. Its surface had a bluish color and there were lobulations of fat beneath the peritoneal covering. It was firm on palpation and fixed to the cecal wall. The anterior colic lymph glands were enlarged but their size and consistency suggested inflammation rather than malignancy. On inspection and palpation, this tumor appeared to be malignant yet it had none of the essential characteristics of the three types of malignant tumors of the large bowel previously described by the writer and since confirmed by the observations of Hayes and later by Craig and MacCarty. On palpation it did not project into the lumen of the bowel as do the first type or the slow growing, cauliflower, fungating types of colonic carcinoma. There was no marked invasion of the tumor by direct extension into and along the bowel wall such as is



Fig. 1. Diverticulum showing its approximate location and size. (Courtesy *Western Surgical Transactions*.)

upon the operative diagnosis of tumors of this portion of the large intestine.

REPORT OF CASE

W. E. P., dentist, age 36, was admitted to the hospital March 19, 1923, complaining of pain in the right lower abdomen, anorexia, nausea and constipation.

I first saw him about 8 p. m. on his third day in the hospital. His family history was interesting in that a maternal grandfather had suffered with attacks of pain in the right side similar to the patient's and finally died in one of these attacks in his 79th year. The patient had suffered from attacks of indigestion which were accompanied by cramping pains and soreness in the right side of abdomen for as long as he could remember. These attacks would follow periods of constipation and would last from a few hours to ten days. The present attack was the most severe he had ever had.

On admission to the hospital his temperature was 100 F. and pulse 92, and had remained at about this level for three days. The white blood cells were 11,000. The urine was negative. The patient was a rather tall, slender individual, obviously underweight but no evidence of recent marked loss. Examination



Fig. 2. Barium enema X-ray taken after operation and showing absence of diverticula in any other portion of colon. (Courtesy *Western Surgical Transactions*.)

* Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

present in the second type of colonic cancer. There was no marked evidence of malignant gland involvement nor could one feel through the bowel wall the punched out ulcer as is usually present in the highly malignant colonic cancer of the third type. Craig has observed that malignant growths in this region usually begin on the posterior wall of the cecum and reach the anterior wall only when they have grown sufficiently to become annular. Because of the absence of these signs of malignancy, we decided that we were dealing with a benign tumor.

The most probable conditions found in the right half of the colon have been discussed by Deaver who says: "The chief conditions to be differentiated from cancer of the right half of the colon are tuberculosis, actinomycosis, bands of adhesions causing partial obstruction and occasionally diverticula."

In considering tuberculosis, one remembers that the cecum is a fairly common site in the intestinal tract for the beginning of this disease. Particular attention has been drawn to this fact by Larimore and Fisher, who state that tuberculosis of the cecum secondary to pulmonary tuberculosis is almost as common as is the fatal termination of tuberculosis. They further emphasize the finding that cecal tuberculosis shows a more extensive bowel wall infiltration than does cancer and in their case reports their resections for tuberculosis of the cecum were of necessity quite extensive. Herrick quotes Mickulicz, Kocher and others as stating that the operative differentiation between tuberculosis and cancer is impossible. The hyperplastic type of tuberculosis of the cecum frequently causes a marked thickening of the bowel wall over a considerable area and frequently involves many lymph glands and usually involves the ileocecal valve. This was obviously not the condition we were dealing with here.

Actinomycosis was not to be seriously considered as usually there is an attachment of the involved gut to the anterior abdominal wall with sinus for-

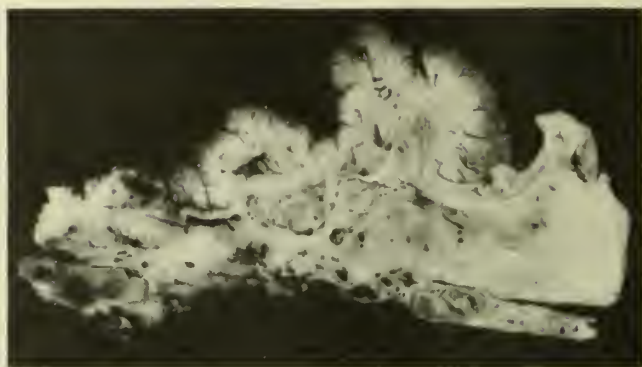


Fig. 4. Cross section of specimen in Fig. 3, showing projections into bowel lumen. (Courtesy *Western Surgical Transactions*.)

mation and external discharge of sulphur bodies. Actinomycosis most frequently involves the appendix and in this patient there was no involvement of the appendix. Obstructing bands were likewise excluded.

Further dissection of the mass revealed that it was plastered on to the bowel wall and by careful dissection the narrow neck of a diverticulum was found. The neck was tied and severed and the stump inverted as an appendix by a linear closure with a Parker-Kerr stitch, as is our usual method of burying an appendix stump. A layer of omentum was stitched over the suture line and the abdomen closed in layers leaving a small Penrose rubber drain in the lower angle of the wound. The recovery of the patient was uneventful except for a small superficial stitch abscess. He was discharged from the hospital on the seventeenth day. Two months later a barium enema X-ray failed to disclose any diverticula in any portion of the colon.

The pathological examination of the specimen revealed a single small ulcerated diverticulum, and in its lumen was a coprolith the size of a marble. Several microscopic sections revealed no evidence of malignancy. The patient has been recently contacted and has remained perfectly well since his operation with no recurrence of symptoms for over four years.



Fig. 3. Typical specimen of Type 1 colonic carcinoma. Note large cauliflower mass projecting into lumen of bowel. (Courtesy *Western Surgical Transactions*.)

We were dealing then with a single diverticulum of the cecum which is a comparatively rare condition. Such a condition must always be kept in mind when dealing with lesions of the right half of the colon as has been pointed out by LeWadd. A short review of the literature shows many reports of multiple diverticula involving several portions of the bowel as well as the cecum but there are very few reports of a single diverticulum of the cecum. In 1917, Jackson found only two cases reported of a solitary diverticulum of the cecum, to which he added a third. Moscovitz in 1918 added another case where the diverticulum had developed in a mass of conglomerate epiploic appendages. Of 118 cases of diverticula of the large intestine, Judd and Pollock record 4.2 per cent. as occurring



Fig. 5. Typical specimen of Type 2 colonic carcinoma. (Courtesy *Western Surgical Transactions*.)

in the cecum but they do not state they were confined to this region alone. Spriggs in 1927 out of 158 cases reported six in the cecum. In the discussion of his paper DeMartel reported a case similar to the one here reported but later X-rays showed numerous diverticula of the sigmoid. Warwick at the time reported one case in which a cancer of the pelvic colon was also found and this leads one to wonder if this condition may not have arisen from a diverticulitis in that region. Hartwell in 1910 reported a perforating diverticulum of the ascending colon associated with a cystic oophoritis and endometritis.

The principal differential diagnosis of tumors in this region of the large intestine must remain between cancer and inflammatory tumors. That such a differentiation is frequently most difficult and often impossible has been attested to by numerous authors including Mayo, Deaver, Moynihan, Lockhart-Mummery, Erdmann, Prim-

rose, Keefe, Miller and others. Excluding the clinical features presented by the patient, which are often of very great help in the differentiation, the point which I desire to emphasize is that malignant tumors of the bowel occur in one of three types: (1) they grow by cauliflower projections into the lumen of the bowel and are very slow to metastasize; or (2) they grow by direct extension through and along the various coats of the bowel and are a little more apt to show glandular metastasis, or (3) they ulcerate rapidly through the inner coats of the bowel wall and at operation show many glandular metastases and frequently secondary involvement of the liver. If these characteristics of growth are kept in mind, they may be of considerable help in differentiating between cancerous and inflammatory tumors at the operating table.

From the above report, it seems logical to draw the following conclusions:

1. In the cecum cancer, tuberculosis, actinomycosis and diverticula in the order named are the most frequent surgical lesions.

2. Differential diagnosis between cancer and diverticulitis is most difficult but may be aided by a careful consideration of the characteristics of growth of colonic cancers.

3. Solitary diverticulitis of the cecum is a comparatively rare condition.

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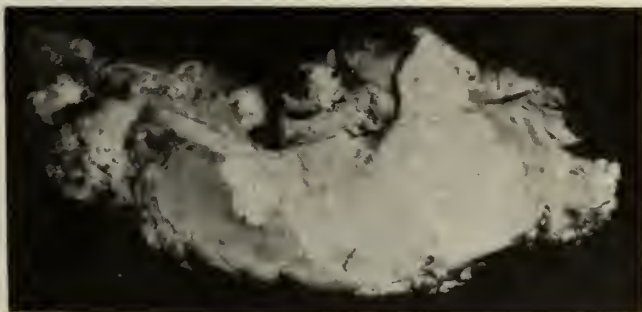


Fig. 6. Cross section of specimen in Fig. 5, showing marked infiltration of carcinoma into and along the bowel wall. (Courtesy *Western Surgical Transactions*.)



Fig. 7. Typical specimen of Type 3 or ulcerating colonic carcinoma. Note large ulcer. (Courtesy *Western Surgical Transactions*.)

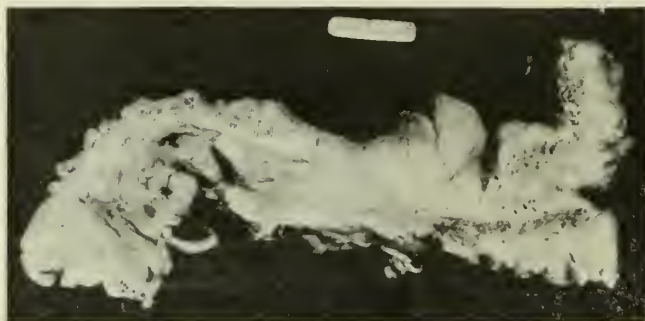


Fig. 8. Cross section of specimen in Figure 7, showing large ulcer area and very small amount of cancer infiltration into bowel wall. (Courtesy *Western Surgical Transactions*.)

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CHRONIC PULMONARY INFECTIONS*¹

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The purpose in presenting this discussion is to bring to your attention the points in differential diagnosis which the X-ray affords in influenza, certain types of pulmonary tuberculosis, bronchiectasis and lung abscess.

GENERAL CONSIDERATIONS

The clinical picture and physical findings in early cases of these conditions often present evidence common to one or more of the infections. When correlated with dependable X-ray studies the differential diagnosis should always be made. In most cases one is never entirely certain from the clinical evidence alone as to the character and extent of involvement until the X-ray evidence is available. In the advanced cases of any one of the conditions under discussion the extent and character of the involvement is readily observed by the X-ray examination.

X-ray studies of the chest by means of fluoroscopy and negatives which present clear lung tissue detail may be considered as essentially methods of precision. Long ago there ceased to be an issue as to the relative merits of chest studies, whether clinical or radiographic. Our most expert clinicians are not content in the analysis

of a given case of intrathoracic pathology unless fortified by interval radiographs.

We have been depending upon our sense of hearing, upon percussion and auscultation to a great extent. To these let us now add methods that use the sense of sight in lung pathology. Dependable radiographs offer exhibits for study and analysis that are not as fleeting as the recollection of certain sounds.

TUBERCULOSIS

The chronic pulmonary infections are either tuberculous or nontuberculous. Pathology within the upper half of the lung fields is tuberculosis until proven otherwise. Lesions within the lower half are never tuberculous until all other infections are excluded. This working rule will reduce the percentage of error in diagnosis of chronic pulmonary infections to a minimum.

In the years since the late war with its pandemic influenza, upper lung fields are presenting tissue changes more closely simulating early tuberculous reactions than were previously observed. The literature is voluminous on the early diagnosis of pulmonary tuberculosis. Recognition in its incipency, in the opinion of authorities as well as our own, is difficult to establish. The unfortunate patient probably feels no worse than he did many times before with an ordinary cold or some indiscretion, and if he did consult medical authorities the condition would in all probability defy recognition. The patient cannot be at fault, neither can the physicians.

Consequently, by the time diagnosis is definitely established, tuberculosis is really a chronic condition and presents a well known symptom-complex together with radiographic findings as follows: A local, fibrotic reaction about the interstitial structure of one or both upper lung fields with varying degrees of parenchymal induration and mottled consolidation. The peripheral involvement is always present and recognizable on radiographs offering clear detail. Small ulcerative changes and even well defined cavities may be present with limited parenchymal infiltration. It has been my observation that unilateral involvement is exceptional. In the presence of a diagnostic lesion in the upper interspaces or apex of one lung a local interstitial reaction with peripheral softening of a lesser degree may be found on the opposite side. At times this is manifested as an extension from the hilum of the other lung.

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

1. From the Roentgen Laboratories of Drs. Skinner, Deweese and Lockwood.

Basal invasion appears as a rule only in advanced cases. However, a pleural reaction with fibrosis and effusion at one or both bases may occur with only limited upper lung field pathology. Given a definite pleural reaction of tuberculous origin at the base, parenchymal pathology of similar origin can be identified in the upper lung.

INFLUENZA

Influenza with its residual lung tissue changes offers confusing shadow values on the negative but should not be difficult to differentiate when the histological features, as summed up by Winternitz, Wasson and McNamara, are considered.

A diffuse involvement of all lung tissue, chiefly with a serous exudate in the subpleural, interstitial, perivascular and peribronchial tissues as well as in the alveoli, is associated with other elements which occur in aplastic reactions—red blood cells, fibrin and bacteria. Added to the aplastic exudate is an acute necrosis of bronchial and alveolar epithelium, involving at times the walls of these structures. Consequently, the histology of this disease is almost as specific as that of any biological reaction.

McNamara points out that the bronchiolar epithelium proliferates in influenza during resolution and healing as in no other infection and has the characteristics of an epithelial neoplasm. Opie says: "The pathological changes certainly suggest precancerous epithelial proliferations." A number of observers have commented on the frequent failure of the influenzal lung to return to normal. Berlinger and others have attributed the recent increase of pulmonary cancer to the effect of the influenza pandemic.

Opie and other observers are of the opinion that influenza is practically always complicated by mixed infection. To quote further: "Necropsies have shown the presence of purulent bronchitis in a large proportion of cases, mucosa intensely congested and after section a droplet of mucopurulent material marks the site of each bronchus or bronchiole and doubtless explains the failure of the lung to collapse. Hemorrhage about the smaller bronchi, especially in lower lobes. Bronchiectasis is most conspicuous in lower lobes and usually more advanced on the left than on the right. Later necropsies show more advanced bronchiectasis."

Consequently, with influenza we find on radiographic examination a very diffuse interstitial thickening, equal and uniform to all lobes.

The outlines of the bronchial trunks and linear markings are very hazy and indefinite, the parenchymal structure remaining well ventilated and clear. Only in the acute and subacute stages we may find homogeneous alveolar blocking over one or more lobes and usually the lower, seldom approaching the density of a tuberculous induration, less peripheral and not of mottled character.

BRONCHIECTASIS

Two forms of multiple bronchiectasis are distinguishable on the X-ray plate. In the less common type one or more lobes of the lung are occupied by numerous globular cavities whose walls are formed by thinned-out, dilated bronchioles. The cavities are often of considerable size, their diameter at times being as much as one inch, lying next to each other and practically replacing the lung parenchyma converting the lung into a honeycomb or sponge-like structure. In this type we do not find any evidence of existing pneumonic infiltration of the surrounding lung structure, which is a potent factor in extending and perpetuating the bronchiectatic process. In these cases the pneumonic infiltration has completely subsided and the patient suffers only from the mechanical effects of bronchial dilatation, attendant bronchitis and periodic accumulation of bronchial secretions.

The more frequent form of bronchial dilatation with accompanying peribronchial induration of varying degrees is more persistent and leads to greater fibrosis which aggravates the bronchiectasis. In these cases the bronchial dilatations are more cylindrical in character and smaller. However the walls are very thick and fibrotic due to the existing subacute pneumonitis.

Pleural and diaphragmatic involvement in advanced cases with fibrosis and impaired mobility, supervening acute infections, may produce pleural effusions and chronic lung suppuration. In the more advanced cases lung abscess is closely simulated, due to multiple foci of lung suppuration and abundant secretions. Differentiating from lung abscess is the absence of lung tissue necrosis and liquefaction, less peripheral in location and continuous with the hilum shadow.

LUNG ABSCESS

The X-ray findings in a well established lung abscess are quite characteristic and offer little difficulty of recognition. The circumscribed area of central necrosis, surrounded by a local pneumonitis, that is, in-

duration and consolidation of the lung tissue.

The cavity or area of lung destruction and liquefaction usually presents an irregular border, especially in the early stages due to lack of a fibrous wall as seen in tuberculous cavitation and old, long standing abscesses. Seldom is there as dense consolidation of the lung structure about a tuberculous cavity as is found in lung abscesses. The parenchymal changes are more localized and massive. There is evidence of an emergency effort for lung abscess to localize; a unified mobilization of defensive factors to confine the involvement to a limited area.

There is a prevailing impression, supported by much experimental work, that lung abscess follows major thrombi with subsequent infection. The sequential or successive course of events is, a local area of atelectatic lung, progressive consolidation with an area of central necrosis and liquefaction. As the condition becomes chronic, fibrosis appears with a heavy wall about the abscess cavity and the surrounding pneumonic area becomes more circumscribed. A typical pneumonia with consolidation of one or more lobes may follow the infarction, the abscess cavity appearing as resolution takes place. Subsequently, multiple small abscesses may develop in the tissue about the primary lesion. The tuberculous lesion and bronchiectasis, the one in the upper lung field and the other at the base, always are more disseminated due to multiple foci of infection and less acute pathology.

SUMMARY

1. The characteristic lung tissue reactions in pulmonary tuberculosis, influenza, bronchiectasis and lung abscess, are revealed by radiographic studies.
2. Pulmonary tuberculosis attacks the upper lung fields, presenting a local fibrotic reaction and parenchymal infiltration.
3. Influenza is a generalized infection with residual interstitial thickening to all lobes.
4. The dependent portions of the lung fields are involved in bronchiectasis. The primary changes are in the bronchi, which are dilated with club-shaped or saccular outlines, peribronchial fibrosis and induration of all degrees.
5. Lung abscess may develop in any lobe, appearing as local peripheral consolidation with a central area of necrosis.

UNDULANT FEVER (MALTA FEVER)*

REPORT OF A CASE

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As undulant fever is on the increase and as early case reports are always helpful, I am reporting a case. Authorities agree that the disease is caused by drinking raw milk from cows that have the disease, described by dairymen as "infection abortion." Our county agent advises me that the disease in cows is becoming more prevalent and at present is one of the serious problems of the farmer. It behooves us not only to be watching for its appearance in man but to be ready to cooperate with health officers to improve the milk supply. In a personal communication one of the surgeons of the Public Health Service at Washington, D. C., writes of its importance and incidently remarks that, "Raw milk is becoming a thing of the past just as raw meat has passed out. Personally, I would not drink raw milk under any conditions—the risk is too great."

REPORT OF CASE

July 16, 1928, male, J. W. E. Age 18, farmer, was referred by Dr. Geo. W. Hawkins, Salisbury, Mo. Patient's reasons for consulting a physician were weakness, stiffness and soreness in feet and legs. Patient said that eleven months previously he had drunk raw milk from a cow and continued doing so up to two weeks before the cow aborted.

Patient was perfectly well until April, 1928, which was three months before he reported for examination. At that time he began to complain of "cold in the head," slight cough, malaise, generalized aching and "felt feverish." Patient thought he had the "flu." These symptoms lasted one week but he was not confined to bed. Recovery was apparently complete in about one week. A week after this seeming recovery he began to have loss of appetite, stiffness and soreness in his joints, especially in the hips. For about ten days he could not bend forward because of pain in the region of the sacro-iliac joints. The joints of his legs became more painful and rendered walking difficult. These symptoms gradually grew worse and by the time of this examination, namely three months from onset, he walked with difficulty and thought that most of his trouble was in the arches of his feet. At no time was there any redness or swelling of the joints. In addition to these symptoms, there was a marked coarse tremor of his hands. No headaches or any eye, ear, nose or throat symptoms, except the "cold in the head" at the onset. Appetite poor. Laxatives have been taken daily. No symptoms referable to heart or lungs. Skin normal and no abnormality of perspiration. His physician found a temperature of 100 the day before he reported for this examination.

Examination.—Walks as one does with tender feet. Gait slow and very little flexion at the knees. Active and passive motions of all joints of the lower

limbs cause pain. Flexion of trunk at hips causes pain. Leg muscles show slight atrophy. No redness or swelling of joints. Hands show a coarse tremor. Nose and throat show no evidence of infection. All of teeth are alive. Gums normal. Heart and lungs negative. Blood pressure 118/70. Temperature 100. Liver palpable one inch below the costal margin the edge round and smooth. Spleen one inch below the left costal margin. Skin clear. No pathological-neurological findings.

Basal metabolism plus 8 per cent. Stereoscopic X-ray films of chest showed no evidence of tuberculosis. Urine normal. (Specific gravity 1.015. Acid. Albumin 1 plus. Sugar negative. One and two hyaline casts to low power field.) Red count 4,768,000, hemoglobin 95 per cent. White count 6,200. Polymorphonuclears 52 per cent. Lymphocytes 45 per cent. Transitionals 3 per cent. Kahn and Wassermann tests negative. Blood cultures negative with four day incubation. Agglutination test for typhoid negative. Agglutination test for undulant fever positive. These typhoid and undulant fever tests were performed in the Public Health Laboratories at Jefferson City, Mo., and at Washington, D. C.

During the two days that the patient was in the hospital the temperature was normal in the morning but rose to 100 in the afternoon. On account of this short hospitalization we were unable to secure a graphic chart of the undulating type of fever.

The characteristic findings at the time of this examination were the presence of the fever, length of disability, enlarged spleen, the stiffness of the joints and the positive agglutination test.

Subsequent History.—Nov. 11, 1928, when he left the hospital, the patient had been ordered to bed and given quinin. After going home (four months ago) he was in bed for six weeks. He had moderate headaches. On alternate days the temperature would be normal in the morning and reach 104 to 105 in the afternoon. During the intervening days the temperature would remain normal. At no time did he perspire. At the end of six weeks the temperature remained normal. At this time he began to improve. The appetite returned. Bowels normal. Strength is gradually returning to his legs and feet; there is a weakness in the hips and back. He is now able to walk but can do no work. He is improving and has no pain.

Examination.—Temperature normal. Spleen and liver not now enlarged. Gait about as when he was first examined except it is more of the "steppage type." As he walks on the level the gait is that of one just learning to walk after being bedridden. When he ascends stairs there is difficulty in lifting the legs. Arising from the sitting position is difficult on account of weakness at hips. To straighten up from the bending position he must place his hands upon his knees for additional support. When recumbent he cannot flex the legs upon the abdomen on account of weakness. The patella reflex and the Achilles reflex are diminished. The plantar reflex is normal. No sensory changes present. Cranial nerves normal. Neurological findings of the upper extremities normal. The Public Health Service laboratories in Washington, D. C., again reported agglutination by the *Bacillus abortus* in a dilution of 1:320.

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EPIDEMIC MENINGITIS

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PART II

Many cases of infection by the meningococcus have been observed in which primary infection of organs other than the meninges occurred. In most instances infection of the meninges followed, but in other cases no meningitis developed.

The earliest case was reported by Solomon in 1902, in a woman of thirty, who developed acute meningococcus rheumatism accompanied by a positive blood culture. After two months of these symptoms she developed meningitis, the organism being isolated from the spinal fluid. She recovered. In 1906 Andrews reported a case of severe general sepsis with general purpuric eruption, a positive blood culture, and death after a few days, without the development of meningitis. This was confirmed by autopsy. R. L. Cecil and W. B. Soper in 1911 reported primary meningococcus vegetative endocarditis with positive blood culture, without complicating meningitis. This was also confirmed by autopsy. Primary meningococcic pneumonia is not uncommon. The writer observed one case in a woman for four days before meningitis developed where the sputum showed meningococcus. Cases of articular rheumatism preceding meningitis are not uncommon, in one case the disease being present for three weeks before meningitis developed. Occasionally suppurative arthritis develops, the joint fluid being purulent and showing many meningococci. Sometimes meningococcus meningitis occurs during the course of other infectious diseases, and other acute infections have likewise occurred during the course of meningitis. Thus, the writer has observed epidemic meningitis implanted on top of a classical typhoid.

During the course of meningitis other forms of pathogenic organisms have become ingrafted in the meninges; for example, influenza infection has developed during the course of meningococcus meningitis with the associated occurrence of meningococcus and influenza meningitis, and, similarly, cases with meningococcic and pneumococcic meningitis have occurred. A number of observers have reported instances of tuberculous meningitis in which an organism believed to be the meningococcus was also isolated from the cerebrospinal fluid. The author has failed to find such mixed infection

in a very large experience with tuberculous meningitis.

It is extremely important to differentiate absolutely between a true coincident infection of the meninges by other organisms and the presence of a secondary cultural contamination which frequently occurs. The irregularity in staining of smears by the Gram method and the differentiation of the so-called Jaeger coccus is also very important.

Meningococcus meningitis in its usual form produces a very characteristic picture.

SYMPTOMS IN THE ACUTE FORM OF MENINGITIS

A. *Accumulative Stage (Stage of Invasion).*—The usual description of epidemic meningitis is that it begins very acutely, coming suddenly without any previous symptoms, and frequently causing severe convulsions, delirium or coma, and intense shock.

The disease probably begins in most instances as a primary bacteremia, then subsequently localizes in the meninges. The period of general primary bacteremia may last from a few to twenty-four hours or longer. Theoretically, at least, one would expect a group of symptoms that would correspond with this stage. While studying many cases in the 1912 Texas epidemic, I was impressed by the fact that one could commonly obtain a history of a group of symptoms preceding the severe outbreak of nervous symptoms, though the patient or family, unless carefully questioned, would usually date the disease from the time of onset of the nervous symptoms. I believe one can secure this history in most cases. During epidemics especially it would be very important to be on the lookout for this stage and, if sufficiently definite, to give the patient the benefit of an early lumbar puncture. In sporadic cases it would, of course, be difficult to diagnose or suspect meningitis during this stage.

The first stage corresponds to the presence of the meningococcus in the general circulation. Judging from the clinical course of cases, it would seem that symptoms of cerebral irritation occur only a short time after the onset of the general blood infection. The cerebral symptoms appear to be due to an increase in the quantity of the cerebrospinal fluid, which at this period is clear and usually entirely normal by chemical and bacteriological examination. The meningococcus has not yet localized in the meninges but has irritated them, probably through its toxic products. Thus, the first stage consists of a general sepsis plus increase in the quantity of cerebrospinal fluid. It seems that the nervous

symptoms appear and grow worse with the increase in accumulation of the cerebrospinal fluid, and that after a certain degree of accumulation there is a violent outburst of meningitic nervous symptoms, corresponding to the second stage. The cerebrospinal fluid sometimes accumulates in large quantities very quickly, within a few hours, so that the second stage may set in only a few hours after the onset and entirely overshadow the first stage. I have referred to the first as the "accumulative" stage.

SYMPTOMS OF ACCUMULATIVE STAGE

Diagnosis.—Many of the symptoms are of a general nature being very much like those of influenza. The onset is acute, frequently with chilly feeling or a severe chill. The patient is feverish and soon begins to complain of painful, throbbing frontal or vertical headache. He is restless, irritable, and vomits. The vomiting is repeated, somewhat explosive, and frequently not accompanied by nausea. Physical examination shows a patient who may not appear ill. His mentality is perfectly clear, but he may be nervous and hypersensitive. The pupils are quite often dilated and may respond sluggishly or fail to respond to light. Photophobia may be present. The neck usually shows no rigidity at first, but as the symptoms grow worse some spasm appears, though for several hours it may be slight and only present on anterior posterior flexion. Tenderness at the angles of the jaws may be quite marked. Herpes is often present and a petechial eruption may occasionally be seen. The pulse and respiration may show no change, or there may be occasional intermitting in the pulse and the breathing may show slight irregularity, especially if noted when the patient is asleep. Sighing, deep and apparently uncontrollable, is quite commonly encountered. The temperature varies considerably. Sometimes it is very high from the onset; at other times it may be low throughout. Careful examination will usually enable one to demonstrate a moderate degree of hydrocephalus, evidenced by the bulging fontanel in young children and by Macewen's sign in older children and adults. Macewen's sign is a dull, tympanic note obtained on percussion of the skull at the frontoparietal region. It is best obtained by raising the head a little, bending it slightly toward the side to be tested, then percussing firmly over the skull with the finger. Both sides should be tested as quite often the sign is more marked on one side. It indicates an increased collection of the fluid within the

ventricles. It may be difficult to elicit this sign with any degree of certainty in older children and adults on account of thickness of the skull.

Blood examination at this stage will usually show a moderate leukocytosis and relative polynucleosis.

After these symptoms have lasted for a variable length of time, up to 24 or 36 hours, there is usually a violent nervous outbreak that ushers in the active picture of meningitis.

While some or even most of the symptoms described may be absent during the accumulative stage, one can ordinarily elicit some suggestive signs which would warrant performing a lumbar puncture.

RESUME OF IMPORTANT SYMPTOMS

1. History of exposure to the disease, especially during an epidemic.

2. Violent headache unexplained by usual causes.

3. Repeated vomiting, explosive in character, not accompanied by any local evidence of gastro-intestinal disorder and uncontrolled by local treatment.

4. Eruption of herpes.

5. Eruption of petechia.

6. Photophobia; hyperesthesia.

7. Dilated, sluggishly responding pupils; sometimes failing to respond.

8. Tenderness at angle of jaws.

9. Signs of hydrocephalus.

- a. Bulging fontanel or Macewen's sign.

- b. Irregular pulse and respiration.

A lumbar puncture at this stage will show, as a rule, a decided increase in the total quantity of fluid with corresponding increase in cerebrospinal fluid pressure. The fluid is usually perfectly clear and limp-id, especially very early in the disease. Microscopic examination may fail to reveal any organisms or may show a few free meningococci which may be explained by the general sepsis. Cytology may be negative or may show slight increase of the lymphocytes. As the meningitis stage is approached the fluid becomes slightly turbid, shows a few organisms and an increase in leukocytes. The essential impression of the fluid during this stage of the disease is certainly not that of a meningitis, but rather like that produced by general toxemia.

The symptoms above described conform to what the writer has classified as the pre-meningitic bacteremic stage of the disease, the stage during which the infection is essentially a general sepsis and precedes the true onset of the meningeal symptoms which comprise the second stage, or the stage of true meningitis. The severity of

this first stage is often an index to the degree of general sepsis, and the more fulminating forms of meningitis are truly indications of more fulminating general sepsis, and in turn the abortive form of the disease is likewise proportionate to a milder degree of general sepsis.

B. Active Stage of Meningitis; Symptoms of Sepsis.—Onset is acute with active symptoms, such as have been described in the accumulative stage. Chills most often occur at the onset of the disease as severe rigors. The percentage of cases having rigors varies in different epidemics. About 20 per cent. of 185 cases I studied in Dallas had the initial chill. Repeated chills are less common, occurring in less than three per cent. usually. The chill is most frequently experienced during the first few days of the illness.

Fever in meningitis is extremely irregular and of no diagnostic significance. The most common curve is irregular, remitting, fluctuating between 101° and 103°. Very high pyrexia, so-called cerebral temperature of 105° or 106°, rising suddenly and dropping just as suddenly several hours later, is quite common. The characteristic feature of the fever in meningitis, treated or untreated, is the extreme irregularity of the curve regardless of the course of the disease. I have not infrequently seen active meningitis in young, robust individuals run afebrile for several days or longer at the onset, then run a low, irregular curve up to 101° or 102°. Other times the temperature may remain afebrile for several days, the cases terminating in death. Some cases show this irregularity changing from afebrile periods to periods of moderate or high temperature without affecting the prognosis per se. Others run a uniformly even temperature of 103° or 104° for days, coming down by lysis or crisis, depending upon the response to treatment. Patients of sixty or over are very apt to run a sub-normal course throughout. Children usually run a higher temperature than adults. The course of fever is considerably influenced by specific serum treatment.

Eruptions of herpes are very common especially in some epidemics. In the Dallas epidemic they occurred in about 50 per cent. of the cases. They usually appear at the very onset of the disease in small or large crops, most commonly over the lips and chin. Less often they are noted in other sites, as over the cheeks, ears, trunk, eyelids, cornea, knees, and anterior pillar of the fauces. The contents are at first serous, but later become purulent. Quite often a

number of fresh crops develop during the disease at or near the original site. Other times, repeated successive crops of herpes develop over different parts of the body. Occasionally the new crops are accompanied by some fever and general constitutional symptoms. One patient, a girl of fifteen, who was convalescing from meningitis, suddenly developed high temperature, 104°, with restlessness, some general symptoms, but no aggravation of her meningitis. Examination revealed some enlarged, tender, cervical glands. The throat, of which there was no subjective complaint, displayed a large crop of herpes over the anterior pillar of the fauces. The following day the temperature dropped to normal. A few days later the fever rose to 103°. This time there was a large crop of herpes over one knee. About three days later a fresh crop appeared over the same knee again accompanied by fever. Herpes is considered of favorable prognostic value in some diseases. There apparently is no such significance in meningitis.

Petechia.—Petechial eruptions appear to be much less common now than formerly. In the Dallas epidemic only about 5 per cent. of 185 cases under my observation developed the eruption. The petechia are usually small, some of the spots having white centers. As a rule the eruption is very profuse, though there may be only a few scattered spots. It appears very suddenly and is distributed all over the trunk and extremities. It is occasionally seen on the palms of the hands and the soles of the feet, and in a small percentage of cases in the eyelids. Petechia are probably bacterial in origin and indicate a bacteremia. Such is the case clinically. Petechial cases are very severe. The patients are very septic and prone to run a rapid, fulminating course.

Purpuric eruptions are much less common than the fine petechial ones. The writer saw them in less than one per cent. of several hundred cases. They may occur in any part of the body, but are most frequently encountered on the extremities.

Erythematous eruptions, which may consist either of a diffuse erythema or of a papular erythema, are occasionally observed. This type of eruption, distinct from that due to serum sickness, is very uncommon and is of no particular diagnostic significance. Osler described a livid erythema accompanied by vesicles filled with blood as occurring sometimes on the extremities.

Conjunctivitis.—Conjunctivitis is so common in meningitis, occurring frequently at the very outset of the disease, that it may be classified as the regular symptom-complex rather

than a complication. It may appear before the development of the active meningeal symptoms, but is usually seen a short time after the disease has become well established. The secretion is purulent and contains many meningococci, intracellular and extracellular. This inflammation unlike the gonococcus is benign and subsides spontaneously.

Mental Symptoms and Symptoms of Meningeal Irritation.—The important diagnostic symptoms in meningitis are the mental symptoms and those of meningeal irritation. They appear early in the disease, are very distinctive and frequently enable one to establish a differential diagnosis between epidemic and other forms of meningitis. The usual characteristic mental state is one of irritability and hypersensitiveness. The mind may remain clear throughout or may be disturbed by periods of delirium. Delirium is usually very active and in adults is frequently of the wild maniacal type suggestive at times of delirium tremens. The periods of delirium are often very short, the mentality being perfectly clear in the interim. The whole mental picture is thus one of hyperexcitability. This feature is even evident in the very late stage of meningitis. With the advance of the disease, frequently associated with increase in hydrocephalus, stupor sets in and progressively increases. Even in the very deep stupor, however, the patient responds and is hypersensitive when disturbed. A curious and somewhat unusual mental state is one suggestive of typhoidal insanity. The writer saw two striking cases of such disturbance which occurred late in the disease when the active meningitis was practically over. In both cases this flighty mental condition persisted well into convalescence for several weeks, then suddenly cleared up. In each case there was a marked simple hydrocephalus. The cause here, as in typhoid, is probably toxic, possibly aggravated by the simple hydrocephalus.

RECAPITULATION

In the early stages especially, the characteristic feature of the disease is a hyperactive, hypersensitive mental state, frequently undisturbed except for occasional periods of delirium. As hydrocephalus increases in the later stages of the disease, the patient becomes stuporous and later comatose. Even when stuporous however the patient will respond upon being disturbed.

The symptoms above described include some of the more important ones of sepsis in acute meningitis. The symptoms next to be considered are those due to (1) meningeal irritation and (2) hydrocephalus (accumulation of fluid within the ventricles).

Headache is constant and a bitterly complained of symptom throughout the whole course of the disease. It is most often referred to the frontal region or vertex. Sometimes, especially in women, it is localized in the occiput. The patient protests that his head is splitting and begs for relief, even asking for lumbar puncture if relief had already been experienced by that means.

Photophobia is a common and annoying symptom from the very onset.

Convulsions are noticed most often in young children in whom they may usher in the disease. They are absent in many cases of older children and adults. Where the disease is progressing unfavorably and is accompanied by a steadily increasing hydrocephalus, general clonic and tonic spasms frequently occur. At the onset of meningitis, convulsions are usually general and clonic in character. Later in the disease local spasms affecting different parts of the body are more common. Here also clonic spasms are present, frequently followed however by tonic spasms lasting for hours. In children under one year of age convulsions are of very significant importance. If tetany can be excluded one should be very suspicious of meningitis.

Twitching is observed most often late in the disease and acts much the same way as the local convulsion.

General bodily pain grippal in character is quit common at the onset. With the development of more active meningeal signs, pain is referred principally to the back of the neck and along the spine.

Rigidity of the neck is one of the most important diagnostic symptoms. It is an early and constant sign, persisting throughout the entire course of the disease. In the very early accumulative stage rigidity of the neck is absent, or there may be a little anteroposterior spasm on attempting to flex the head. As active meningitis sets in, the neck becomes rigid and fixed, and attempts to move the head in any direction are resisted and cause considerable pain and spasms of the posterior group of neck muscles. A good way to test this sign, especially in young children, is to place the hand under the occiput and raise the head gently. If rigidity be present, one can usually raise the head and trunk without flexing the neck. Varying degrees of retraction of the head accompany the neck rigidity. At times, chiefly in the cases of posterior basic meningitis, there is extreme retraction of the head, the occiput almost touching the spine.

The rigidity of the neck, the spasm and retraction of the head usually subside with improvement in the disease. There is a "limbering-up" of the neck muscles, and the patient begins to move his head around, at first very

cautiously, then freely. Not infrequently however the rigidity of the neck with opisthotonos persists well into convalescence and disappears very slowly. There seems to be a considerable element of fear that prolongs the spasms in these cases. In the last moribund stage of the disease there is complete relaxation of the neck as elsewhere.

Rigidity and bowing of the spine go hand in hand with the rigidity of the neck.

Tenderness on pressure at the angle of the jaws is an early sign of some diagnostic importance.

Kernig's sign, like the neck sign, is a very early and constant symptom and is of very considerable relative diagnostic significance though present in other forms of meningitis. It is of little value in children under two years. The test is made by flexing the thigh on the abdomen, then attempting to flex the leg on the thigh. In most normal individuals the legs can be fully extended though in some this can be but partially accomplished. In such instances however one is simply unable to extend the legs fully, while in meningitis there is a sudden sharp spasm of the hamstring muscles accompanied by acute pain referred usually to the back of the leg and thigh, sometimes to the lumbar region. Thus, in meningitis cases during the active stage it is often impossible to extend the leg more than at right angles. I have tested this sign several thousand times in meningitis cases and have found it positive in 95 per cent. As the disease declines, the sign becomes less pronounced. In the last moribund stages there is relaxation here as elsewhere in the body.

Vasomotor Phenomena.—Tache cérébrale is an erythema that appears quickly on slight irritation of the skin, well obtained by gently scratching the skin. This sign is only of minor relative diagnostic importance. Other vasomotor phenomena, such as spontaneous flushing and perspiring of different parts of the body, are commonly seen, especially in cases with marked hydrocephalus. Vomiting occurs in most cases at the onset. The characteristic feature is the fact that it appears causeless, that nausea and other evidence of gastro-intestinal disorder are usually absent. As hydrocephalus increases, vomiting becomes projective and almost uncontrollable. Bowels are often very constipated. Pupils are most often dilated, sometimes irregular, responding sluggishly or failing to respond to light.

Severe Pressure Phenomena: Pulse.—The pulse rate in meningitis is very irregular and is apparently independent of the amount of intracranial tension, temperature, or general condition. At times it is very slow, fifty or under. Most often it is rapid, averaging over one hun-

dred. It is astonishing how comfortable and in what seemingly good condition patients having a tachycardia up to 160 will appear. Irregularity and intermitting of the pulse are early signs of considerable diagnostic value.

Irregularity in Respiration.—Respiration is most markedly affected by increasing intracranial tension. Many observers have studied this important change. Biot in 1878, described a type of respiration which has since been called Biot's breathing and by older authorities cerebral breathing. He considered the breathing to be characteristic of meningitis as against other cerebral conditions with respiratory disturbance. According to Biot, the "meningitis rhythm" lacks the rhythmical alterations of periods of apnea and periods of gradually increasing and decreasing respiratory movement which are the essential feature of the Cheyne-Stokes' type. The respiratory pauses occur at irregular intervals and the individual respiration showed constant variability as to both size and rate.

Connor and Stillman studied forty-three cases of meningitis, making graphic tracings of the respiratory movements. Thirty-two of the cases were tuberculous meningitis, and respiratory irregularities were observed in all at some time during the illness, usually during the greater part of it. Of the remaining eleven cases, six were of the epidemic type, four being secondary streptococcus meningitis and one acute syphilitic basic meningitis. Two of the cases, both epidemic meningitis, failed to show the respiratory irregularities. One was a very mild case recovering in a few days and the other was a child who was very restless and had constant twitchings making it impossible to get satisfactory tracings. According to these authorities, respiratory irregularities appear early in meningitis. They divide them into the (1) Cheyne-Stokes' type; (2) Biot's meningitic type; (3) an undulatory type.

Cheyne-Stokes' type was observed in 53 per cent. of the meningitis cases. Biot's breathing also occurred in 27 per cent. of these cases.

Biot's breathing is characterized by: (1) Periods of apnea of varying length and occurring at irregular intervals; (2) constant irregularity in the rhythm and in the force of the individual respirations; (3) the frequent occurrence of deep, sighing respiration.

Biot's breathing was encountered twice as frequently in adults as in children, while the Cheyne-Stokes' type was present almost twice as often in children as in adults.

Connor and Stillman particularly call attention to the occurrence of deep sighing, saying that in their experience it is rare in conditions other than meningitis. It was observed in a

great many cases and was of considerable diagnostic significance.

The undulatory type differs from the other two types of breathing in that the apnea does not constitute a feature. This form of respiratory disturbance was seen at some time in the course of almost every case.

In discussing the diagnostic value of respiratory irregularities in meningitis, they state that irregularities occurred in 95 per cent. of cases of meningitis studied. Of the three types of arrhythmia, Biot's is unquestionably the most nearly pathognomonic of meningitis. In making tracings of several hundred patients, both adults and children, suffering from different diseases, they met it in only one case not meningitis. Most of the respiratory irregularities observed occurred when the patients were in a state of stupor or coma, but there were a number of exceptions to this rule.

The incidence of Biot's type in the tuberculous cases was distinctly less than in the non-tuberculous cases, there being five instances of it among the thirty-two tuberculous cases, four, or 30 per cent. among the thirteen adults, and five, or 17 per cent., among the thirty infants and children.

In a very large experience with epidemic, tuberculous and other forms of meningitis, I have always considered respiratory irregularity an important diagnostic and prognostic symptom. It has usually been absent in cases without appreciable hydrocephalus, i. e., in cases with little fluid. I have found it to be one of the most significant signs of hydrocephalus, indicating lumbar puncture for relief of pressure. The most common irregularity occurring early in the disease has corresponded to the undulatory type described by Connor. Biot's type, usually called cerebral breathing, is of very considerable prognostic importance. I have seen it frequently in all types of meningitis but never in any other disease. It occurred late in the disease and was usually indicative of a hopeless outlook. Of several hundred cases that I studied I have record of only one case of epidemic meningitis that recovered after this type of breathing had developed.

Bulging of the fontanel in young children occurs with hydrocephalus and is the most important physical sign of this condition. The fontanel is full, sometimes extremely tense. Crying causes the fullness to become more pronounced. Regular pulsation may be present. External heavy pressure over the bulging occasions considerable pain; if continued it produces stupor, convulsions, respiratory pressure symptoms, and death. Macewen's sign is of the same significance as the bulging fontanel.

3. Symptoms of Meningitis Due to Local Nuclear Involvement.—The more extensive

lesions due to nuclear involvement are sufficiently uncommon to be classed as complication. The more common paralyzes occurring early in the disease are those of the eye muscles. Strabismus due to paralysis or spasm is of frequent occurrence, sometimes being one of the early subjective symptoms, as evidenced in the patient's complaint of double vision. It is usually divergent and very transient though it sometimes persists after recovery. The appearance and disappearance of the squint seems to depend upon the degree of hydrocephalus. Slight facial palsy is also quite common but likewise very transient. Other combinations of paralysis will be described under "Complications."

Reflexes.—Reflexes are very irregular. The knee-jerks and ankle-clonus are frequently exaggerated early in the disease and later lost. Exceptions are common however. The plantar reflex is usually lost. A somewhat constant feature is the loss of the abdominal reflex, a fact that has been explained as due to early involvement of the lower part of the cord. Oppenheim's sign has been said by some to appear regularly in the disease. I have found it to be of very irregular occurrence and of no diagnostic significance. The Babinski reflex is not obtained usually. It occurs sometimes late in the disease, especially in posterior basic meningitis. Absence of Babinski's sign is thought to be due to anemia of the cord by hypertension of the cerebrospinal fluid.

Brudzinski's Sign.—Two forms of this are described. The one is called "reflex controlateral identeque." In this, when the patient is supine with both legs extended, it is found, on flexion of the leg and thigh of one side upon the abdomen, that the other leg follows suit the moment the thigh touches the abdominal wall. If this is not obtainable, the second form "reflex controlateral reciproque," may be found. In this case, one leg and thigh being flexed as before and the other extended, it is found that when the flexed limb is lowered to the extended position the opposite limb undergoes in turn flexion on thigh and abdomen.

DeLepinay described a clinical test called the "*Signe de la Nique*." To obtain the reflex the neck is bent forward and it is found that the lower limbs at the same time become flexed at the knees and on the abdomen. This sign is said to be present in 97 per cent. of the cases. It is however only of relative diagnostic importance. In forcibly flexing the neck which is painful and stiff from any cause there is also this tendency to flex up the lower extremities.

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(To be continued)

WASHINGTON UNIVERSITY CLINICS

THE PRESENT EPIDEMIC OF UPPER RESPIRATORY INFECTION AND ITS RELATION TO INFLUENZA*

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In the period from December 6, 1928, to January 22, 1929, 91 cases of acute upper respiratory infection, all running a similar course, were admitted to Barnes Hospital or developed among the nurses of Washington University School of Nursing.

These patients, without exception, presented at the onset the following group of symptoms: Prostration, "raw throat," headache, cough, and general body pains. The prostration was variable in the different cases but in general was far more marked than the degree of temperature and physical findings seemed to warrant. The term "raw throat" is used because many of the patients thus described their subjective sensations. To all appearances the pharynx and tonsils were normal except for some slight injection and in some cases evidences of a postnasal discharge. The few cases which were examined by means of a pharyngeal mirror showed an injection of the posterior nares and nasopharynx. Cough was usually dry and irritating. In many cases it occurred in paroxysms, causing great discomfort to the patient and interfering with sleep and rest. The headache was usually referred to the frontal region and many patients complained of pain and soreness in the eyes. The general body pains were referred to the muscles, usually of the extremities and back; occasionally the pain was designated as being deep-seated in the bone.

In addition to these symptoms, which were found in all, other manifestations occurred in a varying number of patients. The symptoms of "head cold" occurred in 24 cases, or less than one-third of the total series. Conjunctival injection and tightness in the chest were also present in about one-third of the cases. Definite laryngeal involvement with hoarseness occurred in seven cases and in these patients it was the only symptom in addition to those which were common to all. Pain in the chest was present in four and in all these mucoid or mucopurulent sputum was present. Frothy, mucoid sputum streaked with bright red blood was produced by two patients who, however, complained of no chest pain. Although nine presented ear-

* Presented before the St. Louis Medical Society, Jan. 22, 1929.

ache as the predominating symptom, careful examination of the ear revealed no definite involvement and the symptom was probably due to some edema around the Eustachian tube. In none of these cases was myringotomy necessary. Epistaxis occurred in a small group. It was an insignificant finding with one exception in which there was rather constant bleeding for over 24 hours.

The onset was characterized by a chill in only seven patients, although many others complained of chilly sensations throughout their febrile period. Nausea alone was found in three cases and nausea with vomiting as a transient symptom in three others. One showed persistent vomiting over a period of two days. Diarrhea of moderate severity (9 stools in the first 24 hours) was present in one case which was otherwise typical of the group. One patient was irrational the night of the onset, with a temperature of 102°.

One patient presented, in addition to the constant symptoms, the picture of acute appendicitis, with pain in the right lower quadrant, some nausea but no vomiting. The temperature was 104° and blood count 7,400 with 68 per cent. of polymorphonuclear leukocytes. There was some muscle guard but no true spasm. The symptoms entirely subsided within 24 hours.

In the majority of these patients the physical findings were essentially negative. In comparing the clinical picture presented by this group of patients with that presented by past epidemics of influenza, it is interesting to note that cyanosis, except in two patients who developed pneumonia, was not found. The respirations also remained normal and even in those who developed definite signs in the chest the respiratory rate was not as rapid as that usually seen in lobar pneumonia. Although the temperature was usually moderate it occasionally reached 104° to 105°. The peak of temperature usually occurred on the first day, although in about one-third of the cases it appeared on the second and in one or two instances came still later in the course of the disease, and might have been considered a recurrence. The average duration of temperature was three to four days and recurrences after a short afebrile period occurred in a small number of patients. In two patients who showed such a recurrence the white cell count, which had previously been below 7,000, rose above 11,000. This suggested the possibility of some complication although there were no

definite findings to warrant such an assumption.

The blood count was quite characteristic and possibly more than any other factor makes us feel justified in diagnosing these cases as influenza. In the entire group, without exception, the white count was below 10,000. In 72 cases the white count was below 7,000 and in 30 cases there was a definite leukopenia, as is shown below:

WHITE BLOOD CELLS	NUMBER OF CASES
2000-3000	2
3000-4000	12
4000-5000	16
5000-6000	21
6000-7000	21
7000-8000	7
8000-9000	5
9000-10000	6
No count	2

In this epidemic the patients were greatly prostrated but were not often seriously ill. The course was short and the prognosis, so far, has been uniformly good. Comparatively few complications were noted. In only two cases was there evidence of definite consolidation in the lungs and even in these the signs were patchy in distribution and transient. In one case the duration of the course was seven days with complete recovery. Interestingly enough, this patient was a woman 80 years of age. Her leukocyte count was 6,600 on admission, dropped to 5,200 the following day and was 7,400 on discharge. The other case of pneumonia in a physician of 30, was characterized by a far more protracted course and was much more severe. Cyanosis was quite marked at times. There was a bloody sputum which later became purulent and the total stay in the hospital was 28 days.

The question which interests us most keenly is whether or not we are justified in diagnosing these cases as influenza. In this connection it is interesting to review the various descriptions of previous epidemics. Our first accurate clinical description of such an epidemic is found in the "Annals of Influenza," compiled by Theophilus Thompson in 1852.¹

"It attacked at once and raged all over Europe, not missing a family and scarce a person. A grievous pain of the head, heaviness, difficulty of breathing, hoarseness, loss of strength and appetite, restlessness, watchings, from a terrible taring cough. Presently, succeeded a chilliness and so violent a cough that many were in danger of suffocation. The first days it

was without spitting; but about the seventh or eighth day much viscid phlegm was spit up. Others (though fewer) spit only water and froth. When they began to spit, cough and shortness of breath were easier. None died except some children. In some, it went off with a looseness; in others by sweating."

The above quotation is an account of the epidemic of 1510, as recorded by Dr. Thomas Short and quoted by Thompson.

Similar epidemics are recorded as occurring in 1658, 1729, 1743, 1789, 1803, 1833 and 1836. Careful studies were made of the epidemics of 1889 and 1890, a fine description of which was recently written by Alfred Stengel.² He says:

"The symptoms at the onset were general muscular pain, headache, backache and prostration, the last not so specially severe in the beginning as it became somewhat later. There was in the beginning of the epidemic a rather striking absence of catarrhal symptoms in the earlier stages of the disease, which led the Paris clinicians to regard the disease as dengue. Later cases however showed increasing prevalence of the catarrhal type, with bronchial and pulmonary complications and sequelae well marked. The temperature as a rule ran quite high in the more acute cases, being from 102° to 105° F. and not infrequently, especially in the short cases, the decline of fever was a sharp crisis."

After consideration of the clinical picture as seen in all of the epidemics recorded, including that of 1918, Blake³ describes the simple form of influenza without complications as follows:

"Simple, uncomplicated influenza comprises more than 95 per cent. of the cases during the first wave of the pandemic, 70 per cent. to 90 per cent. in the subsequent waves. The onset is usually sudden without a period of invasion. The initial symptoms are chilliness, extreme general malaise and severe aching pains throughout the whole body, but especially in the back and extremities. A varying degree of prostration, sometimes leading to complete collapse, is almost invariably present. Severe headache is common. Stupor or delirium occasionally occurs. The temperature rises rapidly and ranges from 100° to 106° F., in most cases being between 102° and 105° F. The pulse rate varies between 80 and 100 and the respiration rate is slightly accelerated. The patient appears listless. The face and often the neck and upper thorax are deeply flushed; the conjunctivi are injected; the pharyngeal mucosa is intensely

congested. Shortly after onset coryza begins, or sore throat due to pharyngitis, or soreness behind the manubrium sterni, with a dry, irritative cough due to tracheitis. Epistaxis is fairly frequent, occurring in 10 to 15 per cent. of cases. Gastro-intestinal symptoms are insignificant, nausea, vomiting and diarrhea being rare."

"Examination of the blood shows a leukopenia in most cases during the acute stage, although in the milder cases the white count may be normal or even slightly elevated."

In this form the disease is so brief and mild that it may not be recognized as influenza. During the early days of 1918 it was spoken of as three day fever. Under these circumstances the morbidity is high and the mortality negligible.

After comparing the clinical picture as presented in this series of cases with the descriptions of the clinical picture in other epidemics, there is little doubt that we have been witnessing a small epidemic of true influenza in its uncomplicated form. The uniform finding of an absence of leukocytosis and in many cases an actual leukopenia is perhaps the most convincing factor in establishing the correctness of this diagnosis.

Although we have every reason to believe that this epidemic was true influenza, it is fair to state that simultaneously there were in St. Louis many other more or less serious respiratory infections, such as tonsillitis, sinusitis and otitis media. These were widely observed by practitioners in the city and indeed were seen occasionally during the weeks of the epidemic in Barnes Hospital.

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SMALL ANEURYSM PRESSING ON LEFT BRONCHUS WITH COM- PLETE COLLAPSE OF LUNG

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From the Chest Service.

Presented at the Friday Morning Clinical Conference.

A blacksmith, 48 years old, was sent to Barnes Hospital on December 4, 1928, by Dr. Hiram Liggett from the Cardiac Clinic of Washington University Dispensary. For about one year he had tired easily and lost some weight. A pain developed in the upper part of his back and shoulders and radiated into the left arm. For six months he had noticed

dyspnea on exertion, which increased steadily and which was accompanied by a pain over the heart. A cough that developed ten days before entrance to the hospital was productive of a sputum occasionally tinged with blood. In 1908 he had had a sore on his penis which had not been treated.

Examination revealed a well developed man who had lost some weight. The skin itched intensely and was covered with large urticarial wheals, most numerous over the buttocks, back and shoulders. The pupils were small and irregular, the left a little larger than the right. Both reacted sluggishly to light. There was a slight but definite tracheal tug. The left side of the chest was smaller than the right and scarcely moved with respirations. Over the left lung the percussion note was impaired, except in the axilla where, because of the high position of the stomach, tympany was apparent. The breath sounds, tubular over the upper lobe, were not heard elsewhere. The right side was normal except for the evidence of compensatory emphysema. The apex impulse of the heart was found far to the left in the fourth interspace. Over the left second interspace there was a slight systolic impulse. A short systolic murmur was heard over the entire precordium and a soft diastolic murmur was made out along the left border of the sternum. Blood pressure, taken on the right arm, was 124/52; on the left, 122/52. The liver was 3 centimeters below the costal margin.

The Wassermann reaction was four plus. Blood counts and blood smears were normal. The examination of the urine revealed nothing except an occasional faint trace of albumen. Sputum was mucoid and streaked with blood. No tubercle bacilli were found.

An X-ray plate and fluoroscopic examination showed that the entire left side of the chest was obscured by a dense shadow. The heart was found to the left of the midline. The trachea was pulled to the left and the left intercostal spaces were narrowed. (Fig. 1) Lipiodol introduced into the tracheobronchial tree on December 10 filled the right side normally. On the left side entrance into the bronchus was blocked at the bifurcation. (Fig. 2.)

A diagnostic pneumothorax was done on the left chest and a manometric reading of -15 to -16 centimeters of water was encountered as the needle entered the pleural cavity. Three hundred cubic centimeters of air were introduced without causing any marked increase in the intrapleural pressure. Moreover, the fluoroscopic examination which followed showed that there was no appreciable shift of the mediastinum back toward its normal position. The edge of the lung was pushed away from the



Fig. 1. X-ray of chest showing condition on admission, December 4, 1928. Complete opacity of the entire left side with some narrowing of the intercostal spaces. Trachea is deviated to the left; entire right border of vertebral column is easily seen. Heart is entirely in the left side. Right lung is clear. Diaphragm is not seen.

upper chest wall by the air which was introduced. Nearer the mediastinum the aorta could be seen. A fluid level was noted extending across the left side at the junction of the upper and middle thirds. The heart and dia-



Fig. 2. Taken December 10, 1928, after lipiodol injection. Right bronchial tree has filled normally, but on left side entrance to bronchus is obstructed.

phragm could not be outlined because of the dense shadow of the fluid.

On December 17, 350 cubic centimeters of opalescent blood-tinged fluid were removed

and, since the pressure in the pleural cavity was still strongly negative, 175 cubic centimeters of air were introduced. It was somewhat surprising that, contrary to usual experience, fluid could be aspirated only during inspiration. After this procedure the patient could be turned in an oblique position which permitted a partial view of the heart in the right chest and a clearer definition of the aorta near the mediastinum. Movement of the aorta synchronous with the heart beat could easily be seen but no expansile pulsation could be determined. The edge of the compressed lung, the fluid level and the large air bubble above it



Fig. 3. December 17, 1928. After aspiration of fluid and injection of air. Patient turned somewhat obliquely so that right border of heart is seen, in right side. Upper border of left lung is seen pushed away from chest wall by air. A fluid level is noted below. Arch of aorta brought into greater prominence by the oblique position is seen as the dense dark shadow curving down from the mediastinum toward the left. The mottling in the right base is due to the remains of the iodized oil.

were also easily seen. (Fig. 3.) On December 20, 150 cubic centimeters more of fluid were removed. This time there was enough gas in the stomach so that the outline of the diaphragm became apparent. The diaphragm occupied a high position and moved very slightly but paradoxically on respiration, indicating a paralysis of the left phrenic nerve.

The fluid which was removed had a specific gravity of 1.019; containing 20,000 cells, 43 per cent. of which were erythrocytes, 22 per cent. polymorphonuclears, 28 per cent. lymphocytes, and 7 per cent. were not accurately identified but for the most part were large cells with vacuolated cytoplasm and single, relatively small nuclei.

There was no appreciable change in the patient's condition until December 25, when his

cough became more frequent and the sputum more bloody. Quite suddenly, in the early morning of December 26, he coughed up some blood and his mouth was found filled with blood. He died almost immediately.

DISCUSSION

That a collapse of the left lung was present in this patient was evident, both from physical and from X-ray examinations. The numerous publications which have recently considered the subject of massive collapse have clearly established the criteria necessary to make a diagnosis. These include decrease in size and immobility of the chest wall on the affected side; a high, fixed diaphragm; dullness over the atelectatic lung; tubular or absent breath sounds and displacement of the heart to the side of the lesion. In our patient, the left side of the chest was smaller than the right and moved very little. The intercostal spaces were narrowed. The diaphragm was elevated, as indicated by the tympany high in the left axilla. The X-ray plate showed a dense shadow throughout the left side. The percussion note was dull and breath sounds were absent except in the upper lobe where they were heard transmitted from the trachea. Evidence of displacement of the heart was shown by the apex beat, which was detected far to the left and in the fourth interspace. Furthermore, the lipiodol clearly demonstrated an obstruction of the left main bronchus. There was also a great increase in intrapleural negative pressure, a sign of massive collapse which has recently been demonstrated by Habliston.¹

In addition to this, the history of a chancre, the positive Wassermann reaction, the systolic and diastolic murmurs and the high pulse pressure offered unmistakable evidence of syphilis of the aorta. There were also definite indications of aneurysmal sacculation, as shown by tracheal tug, by the pulsation in the second left intercostal space and by the appearance of blood streaked sputum.

It seemed that an aneurysm might explain the entire picture and, indeed, such was Dr. Liggett's impression when he sent the patient into the hospital. As study progressed, however, certain difficulties with this diagnosis presented themselves. After the injection of air made it possible to observe greater detail in the left chest, a definite pulsation or enlargement of the aorta could not be made out. It was suggested that the pulsation in the first interspace and the tracheal tug were due to compression of the left lung and displacement and compression of the structures about the mediastinum. Sauerbruch² has observed a tracheal tug in cases of mediastinal tumor. Further-

more, pressure by an aneurysm is a very unusual cause of massive collapse. Coryllos and Birnbaum,³ in their exhaustive clinical and experimental study of massive collapse of the lung, have tabulated 120 cases taken from the literature and not one of these cases was due to aneurysm. Cases of rupture of an aneurysm into the bronchial tree are not uncommon, but the production of a complete collapse from such a condition is relatively rare. A stenosis of the left bronchus due to an aneurysm was reported by Landgraf⁴ in 1887. Ylvisaker⁵ recently reported two cases of massive collapse of the left lung due to aneurysm. In each of these cases the aneurysm, unlike the one presented here, was very large and easily demonstrable by the X-ray. Habliston cites one case, also of the left lung, in which death was due to hemorrhage into a bronchus.

As an alternative diagnosis, syphilitic stenosis of the bronchus was considered. Except for the history of syphilis this had little to recommend it and seemed unlikely because of the extreme rarity of the condition. It is interesting, however, that Landgraf considered this diagnosis in his case and subjected the patient to unsuccessful antiluetic treatment.

There were many circumstances in our patient in favor of intrabronchial neoplasm. He was of the cancer age (48 years). There was chest pain, weakness, loss of weight and bloody sputum, all common accompaniments of carcinoma of the bronchus. The bloody pleural fluid, which contained many large unidentified cells, was suggestive of a pleural involvement by metastasis. Habliston reported one case of collapse due to obstruction of a bronchus by a benign tumor. This was later partially coughed out and the base of the tumor was fulgurated through a bronchoscope. Very recently in the Chest Service of Barnes Hospital a case of carcinoma of the right lower lobe bronchus with obstruction and atelectasis was greatly benefited by removal of the mass and cauterization through the bronchoscope in the region of the tumor.

In considering these diagnoses, the possibility of relief by means of bronchoscopy or radiation in the case of neoplasm was strongly emphasized. A bronchoscopy was suggested. This procedure in the hands of a skilled operator may be of great diagnostic aid in diseases of the lungs. When performed with care and skill, trauma is slight and the danger quite negligible. In cases of intrathoracic aneurysm, however, and especially in aneurysm involving a bronchus, it should not be done at all or, if attempted, should be approached with the greatest caution. A bronchoscopic examination was done in Habliston's case. The fatal hem-

orrhage followed the procedure by two weeks. Fortunately, in the case reported here, bronchoscopy was not attempted, but it was considered very strongly. The mode of death and the condition which was found at autopsy suggest that in this instance it would probably have had immediate disastrous consequences.

PATHOLOGICAL EXAMINATION

Autopsy No. 36,231, Department of Pathology

DR. HOWARD MCCORDOCK: The body was that of a well developed, well nourished male. Aside from several dried streaks of blood-stained discharge extending over the lower portion of the face from the mouth and nostrils, nothing unusual was seen externally.

The right lung recoiled slightly when air was introduced into the pleural cavity in opening the thorax. All three lobes creptated normally and, on section, the alveoli were everywhere air-containing.

The left lung was completely collapsed and only partially filled the pleural cavity which contained about 500 cc. of blood-tinged fluid. Instead of being crepitant, both lobes felt doughy. When cut the tissue was soft, pasty, airless and dark red in color, very similar in appearance to the fetal state of the lungs. However, all the bronchi were filled with blood and in many it was clotted.

Very slight changes were found in the heart. There was some thickening of the aortic cusps but the valve did not appear to have been incompetent. Beginning just above the aortic valve one found the peculiar longitudinal wrinkling, the scarring and the thinned-out areas produced by local destruction of the elastic and muscle tissue of the media, so characteristic of syphilitic aortitis. In addition to this there were early arteriosclerotic changes with yellow, elevated, fatty patches and an occasional calcified plaque.

A small saccular aneurysm, measuring 4 by 2.5 cm., sprang from the anterior wall of the descending thoracic aorta just at the level where the left primary bronchus crosses after its branching from the trachea. The sac was thus sandwiched in between the bronchus in front and the aorta posteriorly. Because of its small size and the fact that the shorter diameter ran transversely, the aneurysm did not project laterally beyond the aorta and the normal contour of the vessel was thus preserved when viewed from either front or back. From the side, however, the aneurysm was seen to bulge forward from the anterior aortic wall, displacing and compressing the bronchus. The opening from the aorta into the aneurysm measured 2 by 1 cm. It had a smooth edge and was filled with thrombus material that

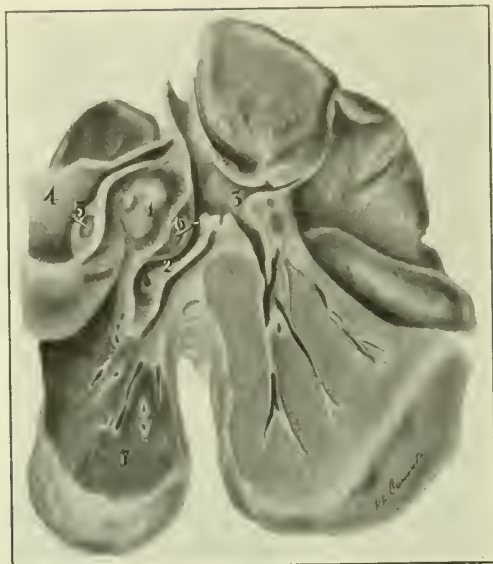


Fig. 4. Drawing of autopsy specimen showing section of right and left lung of aorta and aneurysm. Left lung small, dark and full of blood. Right lung normal. Aneurysm is shown opening into left main bronchus immediately below bifurcation of the trachea. Left bronchus is completely occluded at this point. Dilated arch of aorta and the small opening from it into the aneurysmal sac is also shown. 1. Aneurysm; 2. Left main bronchus; 3. Right main bronchus; 4. Dilated arch of aorta; 5. Entrance to aneurysmal sac; 6. Point of rupture; 7. Left lung, atelectatic.

stuffed the sac. The aneurysmal wall was composed of thinned-out aortic wall and new-formed fibrous tissue. Organization of the laminated thrombus filling the sac was seen in places near the wall.

The trachea contained some recently clotted blood that extended down into each primary bronchus, but especially into the left which was completely filled. When this blood was cleared away and one looked down the trachea into the two primary bronchi, the lumen of the right was unobstructed and of normal diameter; the left however was completely blocked about 2 cm. from the bifurcation by a semispherical bulging of the posterior wall, bringing it into contact with the opposite wall and all that remained to mark the site of the former lumen was a narrow crescentic blood-stained slit situated in the extreme anterior part of the occluded bronchus. When the bronchus was opened, a hole was found through its wall at the summit of the bulge upon the posterior wall. This opening, of course, communicated with the interior of the aneurysm but was almost completely plugged by the old thrombus that filled the sac. The edge of this break in the wall was smooth.

The abdominal organs showed no unusual changes.

Microscopical Examination.—Sections of the aorta showed a local destruction of the elastic and muscle fibers of the media and their re-

placement by scar tissue. The medial scars often contained new-formed blood vessels about which there were great collections of lymphocytes. The adventitia was enormously thickened and contained foci of perivascular round cell infiltration.

The bronchi of the left lung were filled with fresh blood but in a few this was clotted. There were a few patches of atelectasis but away from these all the alveoli were filled with unclotted blood. In the right lung the larger bronchi contained some blood but only a few alveoli contained any.

Discussion. The break in the bronchus had evidently not occurred suddenly, for it did not have the ragged, torn margin one sees in cases of rupture; instead, the edge was smooth and the destruction must have taken place some time before or more likely it had proceeded gradually so as to allow time for healing to produce the smooth edge. For a time before the destruction became extensive the firm thrombus, pushing forward into the rent together with compression against the opposite bronchial wall, must have been effective in preventing an early hemorrhage even though oozing may have occurred. As the defect in the wall enlarged a stage was reached when the combined efforts of the thrombus plug and the pressure upon the opposite wall were no longer able effectively to block the opening and a sudden terminal hemorrhage into the lung ensued. This, no doubt, occurred through the lower part of the hole in the bronchial wall where the thrombus plus was deficient. As the obstruction was well above this point it tended to prevent the blood from running into the trachea, accounted for the presence of most of it in the lung and also explained the absence of a great gush of blood from the mouth which usually accompanies the rupture of an aneurysm into a primary bronchus.

LITERATURE.

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GIANT CALCULI OF KIDNEYS AND BLADDER

JOHN ROBERTS CAULK, M.D.

From the Urological Service of Barnes Hospital.

Presented at the Friday Morning Clinical Conference.

A negro, 34 years old, was admitted to Barnes Hospital on November 27, 1928, with a complaint of pain in the lower abdomen and

perineum. He also felt a fullness in the region of his bladder and his urination was extremely painful. He gave a history of smallpox in his early childhood. In 1922 he had an appendectomy. He never contracted gonorrhea but had a sore on his penis at the age of 17. He had married and had had eight children.

His urinary difficulty started in 1924 when he first noted burning and pain with micturition and located in the perineum from which it spread to the scrotum and penis. There was no nycturia but slight frequency was observed during the day. Occasionally the urine was cloudy. Later he noted that during urination he could feel something fall down inside of his bladder that completely and immediately cut off his stream. In the beginning his pains were not extremely severe, but later they became more violent and lasted as long as two hours after urination. The distress was increased by moving about or by jarring. He also had attacks in which the pain was constant for a period of three days to a week during which there would be a constant sense of fullness in his bladder and distress when sitting. He had been strikingly free from renal symptoms. On one occasion, about four years before, he had suffered pain in the right renal region which was not severe; after that there had been only occasional consciousness of his upper back. From time to time he noted blood in his urine. The attack which occasioned his entrance to the hospital started on November 22 and was more severe than at any previous time. Urination became more and more frequent until he was forced to get up every 40 to 50 minutes.

Examination revealed moderate arteriosclerosis. There was no enlargement of the heart. The blood pressure was 110/70. The abdomen was rigid throughout. There was some tenderness in the suprapubic region but none elsewhere; no masses were palpable on the first examination. Rectal examination showed the prostate small, not tender; no mass was felt. The kidneys were not palpable. The admission urine specimen revealed clumped white cells and fresh blood. The temperature was irregular with a range of 99 to 103° F. The pulse rate was always rapid. Cystoscopic examination was performed by Dr. J. Hoy Sanford. The cystoscope passed an extremely tender urethra and immediately grated against some hard substance on entry into the bladder. A giant calculus became apparent and some encrustation of the bladder was noted. Ureters could not be seen because of a stone. Later, a soft rubber catheter, F. 18, was inserted into the bladder. Only 10 cc. of urine were obtained but the catheter was kept in position for

constant drainage. In the meantime the patient was given forced fluids, particularly by means of hypodermoclysis and every measure instituted to relieve him of his pronounced toxemia and uremia. A later cystoscopic examination which I performed, under sacral anesthesia, on December 6, revealed a large gray-white stone that could be moved freely in the bladder. The left ureteral orifice was patulous and the catheter passed up five inches before it was blocked. A creamy urine was obtained. Granulations around the right ureteral orifice obscured it. Showers of pus were seen coming from this region. A radiogram of the kidneys and blad-



Fig. 1. X-ray of calculi in kidneys and bladder.

der (Fig. 1) showed a complete cast of a dilated kidney pelvis and calices on the right. The greatest vertical dimension of this was 12.0 cm. The opposite kidney showed a similar but more advanced calcification, with the greatest vertical dimension of 16.5 cm. The vesical calculus was of greater density, was circular and appeared about 8.5 cm. in diameter. The urine had consistently a low specific gravity of 1.007 to 1.008. There was always a trace of albumin, many pus cells and colon bacilli. The nonprotein nitrogen of the blood was 51 mgm. on November 29; 37 mgm. on December 4 and 95 mgm. on December 8, the day before his death. The phenolsulphonephthalein excretion was 30 per cent. in two hours on November 27 but had fallen to 20 per cent. on December 1. On November 30 the blood calcium was 9.0 mgm. and on December 8 it was 10.5 mgm. White blood cells were always increased, ranging from 8,900 to 13,200. There was no

anemia. X-ray of the long bones revealed no decalcification. Three days before his death the patient became stuporous. The nonprotein nitrogen in the blood was elevated—and he died. Urinary infection and uremia combined to cause his death.



Fig. 2. X-ray taken of dissected specimen of kidneys, ureters and bladder with calculi.

PATHOLOGICAL EXAMINATION

Autopsy No. 3601, Department of Pathology

DR. HOWARD McCORDOCK: The urinary organs were the site of the only interesting changes found at autopsy. After removing the intestines and upper abdominal organs, the exposed kidneys appeared to be about one and a half times normal size. In removing them, scar-like strands of fibrous tissue extended from the capsule out into the perirenal fat tissue. Lymph nodes lying at the hilus of each organ were greatly swollen and on section presented a grayish, translucent, edematous surface. In this, they resembled nodes draining areas of infection.

The left kidney weighed 880 grams which is well over four times the normal figure. It measured 17 by 9 by 9 cm. The right kidney weighed 560 grams and measured 14 by 8.5 by 7 cm.

Divested of the perirenal fat the surface of each kidney presented several large, slightly elevated bulges, reminding one of the persistence of the fetal lobulations. A hard, irregular mass could be felt within each kidney and pelvis. The capsules stripped with ease exposing a smooth surface studded in places with small white cortical abscesses.



Fig. 3. Photograph of kidneys, ureters and bladder showing the vesical calculus, the coral stones in both kidneys and the finger-like extension of the calculus into the right ureter. Testicles have been included in the dissection to show atrophy of left testis.

When the left kidney was opened a turbid yellow fluid escaped from the pelvis. Both pelvis and calices were enormously distended; indeed, in some places a calyx almost reached the surface, compressing the cortex into a narrow rim of tissue only a millimeter or two in thickness. A huge irregular stone completely filled this distended shell within the kidney. The pelvis was lined with a thick layer of yellowish exudate that extended for some distance into a dilated ureter. Near the pelvis the ureter measured 2 cm. in diameter and gradually tapered to 1 cm. near its entrance into the bladder. Abscesses with white centers and a peripheral zone of hemorrhage were found in the flattened cortex and white longitudinal streaks extended into the compressed remnants of the pyramids.

The right kidney was similar to the left but here a long, finger-like process from the main stone extended down into the dilated ureter for a distance of about 5 cm.

The bladder was thick-walled and its mucosal surface was covered with a thick yellowish exudate. It was found to enclose a large, hard, roughly semispherical stone weighing 240 grams (8 ounces) and measuring 9 by 7 by 6

cm. Its surface in most places was pigmented with brown material but occasional small white areas could be seen.

The prostate and seminal vessels showed no change. The left testicle was atrophic and on section white scars extended from the hilus out into the tubular tissue.

Microscopical sections of both kidneys showed a pyelonephritis with medium sized abscesses in the cortex composed of a liquified center filled with pus and a peripheral zone of congestion and hemorrhage. These were also found in the pyramidal tissue, and the pelvis was lined with a thick polymorphonuclear exudate. Necrotic material impregnated with lime salts was found in a few of the collecting ducts.

There was an acute cystitis with a thick inflammatory exudate covering the mucosa of the bladder.

DISCUSSION

DR. CAULK: The cause of the formation of urinary stones is unknown and why their production is so abundant in some urines and not in others is incompletely understood. There is no typical kind of urine which is stone producing. Many urines, loaded with crystals and inorganic salts, produce no stones while other urines which are entirely clear may have a marked tendency to form calculi.

The salts which are slightly soluble in water, namely, uric acid and calcium oxylate, are most likely to be found in renal calculi. Other constituents slightly more soluble, such as urates, phosphates and carbonates, seem to follow in order of frequency.

Enormous collections of stones may appear within a short space of time and as rapidly disappear. In alkaline encrusted cystitis, for instance, I have seen enormous collections of calcareous material form in the bladder within twenty-four hours after their complete removal and have, furthermore, seen them disappear promptly after changing the urinary reaction. Phosphatic stones which show this particular tendency rapidly disappear with Bulgarian or acidophilus bacilli.

One must differentiate between primary and secondary stones. Unquestionably individual diathesis with certain metabolic tendencies predisposes to stone formation the exact nature of which is awaiting solution. There must be something other than supersaturation with certain salts. Whether this has to do with crystalloids or colloids and is influenced by change in surface tension, I am not entirely prepared to say. Something of this sort is certainly in the background of primary stone formation.

In secondary stones, infection and stasis play

a prominent part. Infection, of course, is not the chief factor since infection occurs so frequently without stone formation and stone formation without infection. Indeed, large stones seldom have a uniform composition. On cross-section, crescentic rings of different constituents are often found, showing that there have been changes affecting urinary chemistry and that with these changes the stone formation has varied.

The nuclei of calculi are usually composed of uric acid. In Ultzmann's¹ statistics of over 500 cases, more than 80 per cent. were due to this salt, 5.5 per cent. to calcium oxalates and 8.5 per cent. to phosphates. Of the superimposed substances, phosphates predominate together with ammonium urates and calcium oxalates.

Obstruction has much influence in the formation of stone and it may be that some of the very small stones have their origin in the minute tubules of the kidney as the result of interference with drainage.

Our case represents an extreme condition. To be sure, the stone in the bladder is not as large as one or two others which have come under my observation and certainly not as massive as some reported in the literature. Gould and Pyle² refer to bladder stones weighing fifty ounces. Alexander Randall,³ of Philadelphia, reported a calculus, the largest on record, which measured 48 cm. in its greatest circumference, weighed 64 ounces when wet and 56 ounces when dry. Although the bladder stone in our case is not unusual, the renal calcification is, indeed, extraordinary and the combination of renal, ureteral and vesical lithiasis altogether exceptional.

The formation of these large coral stones of the kidneys is interesting and patients in whom they occur almost invariably relate the same story. They have had a history of pain which years before was relieved by medication or ceased spontaneously, the patient being told that he had passed his stone. In many instances the waters of famous springs have supposedly dissolved these foreign elements. As a matter of fact, the stone has dropped back into a lower calyx in a silent, unobstructive area and there, acting as a point of precipitation ("the irregular brick in the gutter"), has hastened the formation of salts on this fixed stone with the production of masses similar but not as extensive as this. The symptoms become manifest later when infection has entered the picture.

About 27 per cent. of stones in the ureter and renal pelvis have had some previous appendectomies for the relief of their pain. With

better methods of differential diagnosis, stones such as these are seldom seen today.

There are several therapeutic considerations in this case. Paramount is the preoperative attention to the renal insufficiency and infection. Renal drainage is essential. I was able to accomplish partial drainage of the left kidney by means of the ureter catheter; the right kidney was so obstructed as to prevent catheterization. If there had been any improvement in the patient's condition, ureter catheter drainage would have been attempted; if this had been ineffective, nephrostomy would have been necessary first on one side, then on the other.

A number of years ago I had in this clinic an elderly woman who had large bilateral coral calculi with not a trace of phthalein in two hours from either kidney. The nonprotein nitrogen was well over 100 mgm. per cent. She was running a high irregular fever and was in a desperate condition. By means of repeated ureter catheter drainage with an indwelling catheter I was able to tide her over this emergency and in the course of four months had drained both kidneys at different times and had by secondary renal operation on each side removed the stones from the kidney. It was on this patient I proposed the two-stage operation for the removal of renal calculi which was reported in Pilcher's Memorial number of the *Annals of Surgery*.⁴ This patient finally got well and a year later showed normal kidney function and was in perfect health with no apparent urinary infection. Her recovery demonstrated the remarkable reconstructive and regenerative power of kidney tissue following removal of foreign bodies and the relief of infection and retention.

Although the kidney function of this patient was far better than that of the woman who recovered, his toxemia was out of proportion to his apparent renal deficiency. The bladder stone did not notably influence the general picture since the patient was perfectly comfortable with an indwelling catheter and drainage was sufficient. In his case, I feel that a cystotomy with removal of the stone, even though possible, would have been of secondary value so far as relief was concerned. Certainly it would have been a dangerous procedure in the presence of the great upper urinary tract difficulty. Mechanically, it would have been easy to remove it by suprapubic operation. Randall successfully removed the enormous stone which he reported.

I feel, also, that it would have been simple to remove the vesical stone by litholapaxy at a later period when the renal condition might have justified it. It has been my experience that these larger stones are easier to crush than

many of the smaller ones since they are so frequently composed in a great measure of phosphates. Usually, the whole stone need not be crushed. It is necessary only to break the outer surface and open lines of cleavage. Cultures of acidophilus or bacillus *Bulgaricus* may then be introduced. These enter the lines of cleavage and aid materially in the dissolution of the stone.

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VOMITING OF PREGNANCY

John P. Gardiner, Toledo, Ohio (*Journal A. M. A.*, Dec. 22, 1928), discusses vomiting of pregnancy. He concludes that the vomiting of pregnancy is a self-limiting disease. Vomiting, as with yawning, respiration, urination and defecation, is a mixed primordial function. Menstruation is associated with an increased intestinal gradient and pregnancy is associated with a decrease, possibly the result of a substance given off by the chorion of the zygote. The time of greatest activity of the chorion corresponds to the time of the greatest frequency of the vomiting. Experimental work on dogs has shown that the pathologic changes induced by the vomiting of pregnancy are difficult to distinguish from those of inanition. The human being, because of the upright position, is the only mammal subject to the vomiting of pregnancy. The immediate cause of death is probably exhaustion. The value of the inverted ventral posture is that it separates the genital and intestinal tracts. The employment of sedatives is logical. Enteroclysis is safer and is a more rational guide to the amount of fluid needed than intravenous administration of hypodermoclysis. The inverted ventral method has been used with success in three cases.

PHYSIOLOGY OF MICTURITION

In studying the physiology of micturition, the cystometer that Francis H. Redewill, San Francisco (*Journal A. M. A.*, Dec. 22, 1928), has devised has proved especially valuable in that it records the time element during the process of filling and emptying of the bladder, thus indicating variance in tonicity of the bladder wall and making it possible to diagnose such conditions as physiologic or pathologic herniation. Barium solutions can be used as irrigating mediums to study pathologic bladder conditions with the fluoroscope. The new portable cystometer will aid materially in studies of the bladder and its action with the cystoscope and fluoroscope. With this new cystometer, the time element, as well as volume and intravesical pressure, are simultaneously recorded with ink on tape that remains as a clean, inexpensive, permanent record. Neurogenic conditions of the urinary bladder, as well as tumors, diverticula and obstructions of the vesical neck, are more easily and quickly diagnosed in children and in adults by utilizing, along with other measures, the new cystometer.

THE JOURNAL

OF THE

Missouri State Medical Association

MARCH, 1929

EDITORIALS

IN THE LEGISLATURE

This session of the legislature is a revision session when all the statutes are reviewed. Many laws will be repealed and others amended for one reason or another. It being a long session lasting 120 days there seems to have been no great hurry in passing bills. At this writing, however, both Houses have quite a few bills on the calendar for third reading and final passage.

Among the bills that our Association feels warranted in watching for the protection of the interest of physicians and of the public health are the following:

One of the most important measures from our standpoint is S. B. 407, introduced by Senator Kinney, St. Louis. This bill creates a department of mental diseases under the supervision of the health supervisor and the Eleemosynary Board. It provides for the examination of any person pleading insanity as a defense before any court, the examination to be made by the staffs of the state hospitals. These examinations may be ordered by the court on its own motion or upon the application by the counsel on either side. The report of the result of the examination must be made in writing to the court and the attorneys on both sides are entitled to copies of the report. The examiners may be subpoenaed as witnesses in the trial but they shall not receive any additional compensation therefor. The department is also required to examine the inmates of the penitentiary and of the Boonville Reformatory at least three times a year. Those inmates who are found to be insane would be removed to the proper institutions for treatment. The bill has been referred to the Committee on Eleemosynary Institutions.

This bill is designed to make it more difficult for experts in criminal cases to impress the courts and juries with their testimony on insanity. The findings of an investigation by an official, unprejudiced and impartial department of the state government would carry far more weight with a jury than the individual testimony of any expert who, it is well known beforehand, will testify in favor of the side that has employed him. The bill does not prohibit the calling of such individual experts but the

report of the state department on mental diseases will it is hoped minimize the scandalous testimony offered by experts on insanity in the past who, too often, twist their opinions when testifying to fit the side that pays the fee.

S. B. 538. Introduced by Senator Brogan, St. Louis. This bill relates to inquests and coroners, repealing the present law and enacting a new law. Under the provisions of the bill no undertaker is eligible for the office of coroner. The bill provides for the creation of a new officer in the coroner's office, the "medical examiner," one medical examiner for each county and two for the City of St. Louis. These medical examiners are to be appointed by the Governor. The medical examiner must be a graduate of a reputable medical school, must have served one year as an intern in an accredited hospital, have two years of experience in performing autopsies, and he must be indorsed and recommended by his county medical society. In the 114 counties the medical examiner will receive a fee of \$30 for performing an autopsy and a fee of \$5 for simply viewing a body and reporting to the coroner. In the City of St. Louis the medical examiners will each receive a salary of \$4,000 and no fees.

This is a very important measure and would add very materially to the efficiency of the coroner's office. The bill has been referred to the Committee on Eleemosynary Institutions.

One bill that will interest most of our members is an amendment to the Workmen's Compensation Law repealing the clause limiting the amount to be paid for hospital service, medical attention and supplies, to \$250 in the first 60 days after the injury. This is H. B. 280, introduced by Dr. C. H. Wallace, St. Joseph. Under the provisions of this bill there is no limit on the amount that may be paid nor any mention of a time limit. This clause reads:

Sec. 13. (a) In addition to all other compensation, the employee shall receive and the employer shall provide such medical, surgical, and hospital treatment, including nursing, ambulance and medicines, as may reasonably be required to cure and relieve from the effects of the injury.

This bill was referred to the Committee on Workmen's Compensation and a hearing was held on it on February 21.

Another amendment to the Workmen's Compensation Law, introduced by Mr. Allen, St. Louis, will permit the employee to employ his own physician at the expense of the employer instead of at his own expense as now provided in the law. Many other amendments to the Workmen's Compensation Law have been introduced, most of them pertaining to the time and amounts allowed for disability. One bill repeals the law in toto.

H. B. 103. Introduced by Mr. Woods,

Rolla, provides for three years' improvement in the penitentiary for killing, maiming or torturing any dumb animal. As introduced the bill would put a stop to all animal experimentation. It was referred to the Committee on Criminal Jurisprudence on January 16. Our Committee on Public Policy immediately prepared an amendment to the bill as follows: "Provided, that nothing herein contained shall be construed to prohibit or interfere with any scientific experiments or investigations." This amendment was adopted by the Committee on Criminal Jurisprudence and so amended the bill was reported out and passed. It is now on the Senate Calendar for second reading.

H. B. 27. Introduced by Mr. Williams, St. Louis, requires state university, teachers' colleges and school districts that provide courses of college rank that receive state aid to establish courses in preventive medicine and oral and dental hygiene, the instructors to be graduates of schools of medicine or dentistry in good repute.

The bill was referred to the Committee on Education on January 10 and reported out January 17 with the recommendation that it do not pass. This effectually kills the bill.

THE SPRINGFIELD SESSION

Arrangements for the 72d Annual Session of the State Medical Association to be held at Springfield, May 13-16, are progressing with every prospect of a large attendance and ample facilities for a pleasant and profitable visit by every member. All meetings will be held in the Kentwood Arms Hotel. Here also the exhibits will be installed. The preliminary program is published on another page in this issue* and we believe the members will be pleased with the subjects to be discussed and the variety of topics presented. The symposiums presented at the Columbia session last year were received with such enthusiasm that the Program Committee has arranged for four symposiums at the Springfield session, namely, Symposium on Fractures, Symposium on Neurology, Symposium on Obstetrics, Symposium on Chest Diseases.

The Program Committee has invited a number of prominent speakers from other parts of the country to be our guests and deliver addresses on subjects that they are so well prepared to discuss and bring to us the very latest views of the scientific world. These guests are:

Dr. Peter Bassoe, Chicago, Professor of Neurology, Rush Medical College, "Our Present Knowledge of the Psychoneuroses, With Especial Reference to So-Called Neurasthenia."

Dr. Preston M. Hickey, Ann Arbor, Michigan, Professor of Roentgenology, University of Michigan Medical School, "X-Ray Diagnosis of Fractures."

Dr. H. E. Kleinschmidt, New York City, Medical Supervisor, National Tuberculosis Association, "Tuberculosis in Childhood."

Dr. James Stuart Pritchard, Battle Creek, Michigan, "Pain in Tuberculosis."

Dr. J. H. J. Upham, Columbus, Member of Board of Trustees, American Medical Association, and Dean of Medicine, Ohio State University College of Medicine.

Springfield has ample hotel facilities to accommodate all members who will attend so we look forward to a large attendance.

The following committees have been appointed to manage the affairs of the Springfield meeting:

GENERAL COMMITTEE ON ARRANGEMENTS

W. M. West, Monett, Chairman; J. C. B. Davis, Willow Springs; Robert M. James, Joplin.

LOCAL COMMITTEE ON ARRANGEMENTS

H. A. Lowe, Chairman; W. E. Handley, Secretary.

Committee on Hotels: W. A. Delzell, T. O. Klingner, W. J. Wills, Murray C. Stone and Wallis Smith.

Committee on Registration: Guy Callaway, J. E. Dewey, Lee Cox and W. R. Beatie.

Committee on Exhibits: E. M. Fessenden, F. T. H'Doubler, C. E. Feller and W. C. Cheek.

Committee on Golf: C. Bertram Meyer, George W. Hogeboom, R. W. Hogeboom and T. H. Romeiser.

Committee on Auto Transportation: Wilbur Smith, S. F. Freeman, U. J. Busiek and J. P. McCann.

Committee on Reception: Joseph W. Love, J. D. James, Arthur Knabb and L. R. Webb.

Committee on Entertainment; Francis B. Camp, A. W. Gifford, A. L. Anderson, J. N. Wakeman and Robert Glynn.

AMERICAN COLLEGE OF PHYSICIANS, BOSTON, APRIL 8-12, 1929

The American College of Physicians will hold its Thirteenth Annual Clinical Session in Boston, April 8-12. Dr. Charles F. Martin, Dean of the Faculty of Medicine, McGill University, is president of the College, and Dr. John H. Musser, Professor of Medicine at Tulane University Medical School, president-elect, will be inducted to the presidency toward the end of the Boston meeting. Dr. James H. Means, Jackson Professor of Clinical Medicine at Harvard Medical School and chief of the medical service at the Massachusetts General Hospital is general chairman of

* Page 151.

all Boston committees having charge of arrangements for the clinical session of the College in April.

The program provides hospital visits, clinics, demonstrations and ward-walks during the forenoons at fifteen different Boston hospitals, and for general scientific sessions each afternoon and evening in the Assembly Room of the Hotel Statler, which will be headquarters. Eminent authorities in their special lines will present the results of their work before an audience competent to appreciate the value of the contributions.

A "Symposium on Deficiencies" will take place the first evening of the session and will be of particular interest because of the fact that deficiencies are nowadays assuming a far more widespread and important role than had heretofore been anticipated. They have come into their own as factors producing acute and chronic disease on a par perhaps with infections. The committee has secured for the program men who can speak with authority on a variety of aspects of this important subject.

Another special feature is a review of the "Present Status of Vaccine and Serum Prophylaxis and Therapy," designed to give the internist a rapid survey of the field. The speaker, Dr. Benjamin White, Boston, is an authority on these subjects and can give the high spots in rapid and yet forceful fashion.

The annual banquet of the College will be held Thursday evening, April 11, when Dr. George E. Vincent, President of the Rockefeller Foundation, will deliver the chief address. The convocation, for the conferring of Fellowships, will take place Friday evening, April 12. Dr. Charles F. Martin, of Montreal, will deliver the presidential address.

Programs and further details may be secured from the Executive Secretary, E. R. Loveland, 133-135 S. 36th Street, Philadelphia.

HOTEL RATES FOR THE SPRING-FIELD MEETING

Hotels	Single Without Bath	Single With Bath	Double Without Bath	Double With Bath
Kentwood Arms (Headquarters)		\$2.50 up		\$4.00 up
Ben Franklin....		1.50	Suites	7.00 up
Colonial	1.50	2.50	2.50	2.50
Frederick	1.00	1.50	2.00	4.00
Ozark		2.00 up		2.50
LaFayette	1.25	1.50	2.00	3.00 up
Marquette		1.50		2.25
Reams	1.50	2.00	2.50	2.50
Savoy	1.50	2.00	2.50	3.00

NEWS NOTES

Dr. Norman Tobias, St. Louis, was the guest of the Franklin County (Illinois) Medi-

cal Society at Ziegler, Illinois, January 31, 1929, and read a paper on "The Modern Diagnosis and Treatment of Syphilis."

At the January meeting of the Staff of Bell Memorial Hospital, Kansas City, the following officers were elected: President, Dr. Nelse F. Ockerblad; vice president, Dr. Lawrence P. Engel; secretary-treasurer, Dr. Earl Padgett.

Dr. Irwin S. Brown, Kansas City, is taking a postgraduate course at the Brady Urological Institute, Baltimore, under Dr. Hugh Young, and will return to Kansas City at the completion of his work.

Dr. Glenn R. Northup, for the past three years surgeon for the Pittsburgh Plate Glass Company at Crystal City, has moved to St. Louis and become associated with Dr. Walter E. Hennerich in the general practice of medicine and surgery.

The bimonthly meeting of the Missouri-Kansas Neuropsychiatric Society was held at the University Club, Kansas City, Missouri, February 11. The retiring president, Dr. Karl A. Menninger, Topeka, Kansas, gave the presidential address, "A New Classification of Personality Types." Dr. William C. Menninger, also of Topeka, presented the details, with autopsy material, of a case of frontal lobe neoplasm. The following officers were elected for 1929: President, Dr. E. T. Gibson, Kansas City, Missouri; vice president, Dr. M. L. Perry, Topeka; secretary-treasurer, Dr. Forrest N. Anderson, Kansas City, Missouri.

The United States Civil Service Commission announces open competitive examinations for a physician and associate physician. Applications must be on file with the Civil Service Commission at Washington, D. C., not later than June 29. The examinations are to fill vacancies in hospitals of the Veterans' Bureau for duty throughout the United States. Competitors will not be required to report for examination at any place but will be rated on their education, training, and experience. On account of the needs of the service, papers will be rated as received and certification made as the needs of the service require. Full information may be obtained from the U. S. Civil Service Commission, Washington, D. C., or from the secretary of the U. S. Civil Service Board of Examiners at the post-office or custom-house in any city.

The March Clinic of the Kansas City South-

west Clinical Society will be held at Research Hospital, Kansas City, March 12. The invited guest will be Dr. Vernon C. David, Professor of Surgery, Rush Medical College, and member of the staff of the Presbyterian Hospital, Chicago. In the morning he will discuss "Diagnosis and Management of Gallbladder Diseases." In the evening he will be the guest speaker at a joint meeting of the Clinical Society and the Jackson County Medical Society, and will present a paper on "Management of Some Lesions of the Large Bowel." These two subjects will hold a great deal of interest for the general practitioner as well as the surgeon and it is anticipated that a large attendance will greet Dr. Davis. At this joint meeting Dr. A. H. Cordier, Kansas City, will give a talk on bird life showing some interesting pictures taken by him on his many hunting trips. Dr. Cordier was active in the work of the organization for many years but is now retired. He is the author of a book entitled "Shooting Wild Birds With a Motion Picture Camera."

The following articles have been accepted for New and Nonofficial Remedies:

Ciba Company, Inc.

Lipiodine—Ciba, Diagnostic

Ampules Lipiodine—Ciba, Diagnostic, 5 cc.

H. K. Mulford Co.

Acidophilus Bacillus Liquid—Mulford

E. R. Squibb & Sons

Dandelion Pollen Allergen Solution—

Squibb; English Plantain Pollen Allergen

Solution—Squibb; Goldenrod Pollen Al-

lergen Solution—Squibb; Perennial Rye

Grass Pollen Allergen Solution—Squibb;

Ragweed (Dwarf) Pollen Allergen Solu-

tion—Squibb; Ragweed (Giant) Pollen

Allergen Solution—Squibb; Red Top

Pollen Allergen Solution—Squibb; Rus-

sian Thistle Pollen Allergen Solution—

Squibb; Sunflower Pollen Allergen Solu-

tion—Squibb; Bermuda Grass Pollen Al-

lergen Solution—Squibb, 5 cc.; June

Grass Pollen Allergen Solution—Squibb,

5 cc.; Mugwort Pollen Allergen Solution

—Squibb, 5 cc.; Orchard Grass Pollen

Allergen Solution—Squibb, 5 cc.; Sage-

brush Pollen Allergen Solution—Squibb,

5 cc.; Western Ragweed Pollen Allergen

Solution—Squibb, 5 cc.

OBITUARY

CAD H. ATCHISON, M.D.

Dr. Cad H. Atchison, Farley, a graduate of the Ensworth Medical College, St. Joseph, 1901, died September 14, 1928, aged 56.

Dr. Atchison was engaged in the general practice of medicine at Farley for many years, and was a member of the Platte County Medical Society.

WILLIAM L. M. WITTER, M.D.

Dr. William L. M. Witter, Milan, a graduate of Missouri Medical College (now Washington University School of Medicine), St. Louis, 1886, died November 27, 1928, at the home of his daughter, Mrs. Clifford Phillips, Grand Rapids, Michigan.

Dr. Witter was a member of the Sullivan County Medical Society and a Fellow of the American Medical Association.

EDWIN LACLARE RUSSELL, M.D.

Dr. Edwin L. Russell, Kansas City, a graduate of University Medical College, Kansas City, 1901, died December 18, 1928, aged 55.

Dr. Russell was a specialist in diseases of the eye, ear, nose and throat. He was a member of the Jackson County Medical Society and at one time was assistant demonstrator of anatomy at the University Medical College, Kansas City.

HENRY ADAM WELL, M.D.

Dr. Henry A. Well, Springfield, a graduate of Barnes Medical College, 1898, died April 18, 1927, aged 64.

Dr. Well was a native Missourian, born at Koeltztown, Osage County, in 1865. He received his early education at Jefferson City, Missouri, and Gleason, Tennessee. After receiving his medical degree he established himself in the practice of medicine at Wardsville, Missouri, remaining there for eight years. He then moved to Hermann, and later to Springfield where he practiced until the time of his death. He became a member of the Greene County Medical Society in 1916.

JULIUS BRUEHL, M.D.

Dr. Julius Bruhl, Kansas City, a graduate of the University of Würzburg, Germany, 1887, died at his home, the Snyderhoff Hotel, December 3, 1928, of chronic myocarditis, aged 75.

Dr. Bruhl was born in Germany and was educated at the Gymnasia and the medical department of the University of Würzburg where he received his medical degree. In 1887 he engaged in the general practice of medicine in Kansas City and became a member of the Jackson County Medical Society in 1889. In 1914 he was elected an Honor Member of the Society. He was professor of medicine in the Medico-Chirurgical Medical College, Kansas City, and served on the staff of the old German Hospital in Kansas City. In some earlier field

work he had been an army surgeon and a ship doctor in Germany.

In all Dr. Bruehl practiced in Kansas City thirty-five years. He was a student of scientific medicine, but due to poor health he had been unable to practice for a number of years prior to his death. He had no relatives in Kansas City, his wife, Anna, having died April 22, 1922.

THE COMMITTEE ON NECROLOGY,
Jackson County Medical Society.

BUFORD M. HENRY, M.D.

Dr. B. M. Henry, Alba, a graduate of the University Medical College, Kansas City, 1892, died suddenly of heart block, January 5, 1929, while making a sick call, aged 59.

Dr. Henry was well known in Jasper County, having practiced his profession at Alba for thirty-six years. He was born in Harrodsburg, Kentucky, September 1, 1869. He located at Alba immediately after his graduation from medical school, and in 1902 was married to Stella Sims, of Alba. He became a member of the Jasper County Medical Society in 1921. The following resolutions were adopted by the Society on the death of Dr. Henry:

WHEREAS, Our friend and confrere, Dr. B. M. Henry, of Alba, Missouri, has been taken from us by death, and

WHEREAS, By his many years of service as a physician, citizen and friend to the people of his community and his loyal active service in this Society, he had endeared himself to all who knew him, therefore be it

Resolved, That we express our sincerest regrets at his loss and our sympathy to his family and friends, and be it further

Resolved, That a copy of this resolution be made a part of the permanent record and a copy sent to his family.

DR. W. H. MALLORY,
DR. S. A. GRANTHAM,
DR. E. D. JAMES,
Committee.

THOMAS BUFORD M. CRAIG, M.D.

Dr. T. B. M. Craig, Nevada, a graduate of the Beaumont Hospital Medical College (now St. Louis University School of Medicine), St. Louis, 1896, died at his home January 24, 1929, of heart disease. He had been ill since June, 1928, and for a time had been treated at St. Luke's Hospital, Kansas City.

Dr. Craig was born in Monroe County, Missouri, March 28, 1871, the son of Rev. W. B. Craig and Mrs. Craig, pioneer residents of that section of the state. He was educated in the schools of Monroe County and Paris, and after a collegiate course en-

tered the Beaumont Hospital Medical College, St. Louis, where he was graduated in 1896. He immediately entered practice at Nevada, where he became health officer and



THOMAS BUFORD M. CRAIG, M.D.
NEVADA, MO.
1871-1929

local surgeon for the Missouri, Kansas and Texas and Missouri Pacific railroads. During the administration of Governor Gardner, Dr. Craig was appointed superintendent of State Hospital No. 3, Nevada, and he made an excellent record. He was active in the affairs of the Vernon-Cedar County Medical Society and the State Medical Association, and was a man who kept abreast of the advances in his profession. He served as president of his County Society in 1920 and 1921, and as Councilor of the Sixteenth District of the State Medical Association from December, 1920, until the time of his death. In January, 1929, he was elected an Honor Member of the Vernon-Cedar County Medical Society. He was a Fellow of the American Medical Association. He was a member of the First Baptist Church and of a number of fraternal organizations. He is survived by his widow and one son, Tom, three sisters and two brothers.

Of a genial disposition, straightforward and earnest in all his activities, Dr. Craig made friends readily and earned their respect and esteem for his many good qualities. As Councilor of his District he main-

tained harmony and friendly relations among the physicians and cooperated at all times with the county societies in promoting their welfare and usefulness. His death is a severe loss to the Association and to the medical profession generally as well as to the numerous friends and patients who had learned to love him.

HERBERT SPENCER MAXWELL, M.D.

Dr. Herbert S. Maxwell, Hopkins, a graduate of Washington University School of Medicine, 1914, died January 5, 1929, at St. Francis Hospital, Maryville, apparently of



HERBERT SPENCER MAXWELL, M.D.
HOPKINS, MO.
1887-1929

meningitis, aged 41. He had been overtaxed by the prevalence of illness in his extensive practice toward the close of the year, and had been ill since Christmas.

Dr. Maxwell was born December 4, 1887, near Braddyville, Iowa. He attended school at College Springs, Iowa, and received the degree of Bachelor of Arts at the University of Kansas, and soon after his graduation in medicine he entered practice at Hopkins. He was married to Miss Fayth Wickersham who survives him with two children, Edna Ruth and Robert. He is survived also by his father, Charles Maxwell, of Braddyville, and two sisters.

Dr. Maxwell was president of the Nodaway County Medical Society in 1928 and

had been reelected to serve during 1929. He served overseas for nine months during the World War and was commissioned a captain. His death is a serious loss to the profession and to the people of his community. A large practice was dependent upon his care and in addition, as a director of the Farmers and Merchants Bank and a member of the Hopkins Board of Education, he was a civic leader among the people.

The Nodaway County Medical Society adopted the following resolutions on the death of Dr. Maxwell at its meeting of January 11, 1929:

Divine Providence having taken from our midst Dr. H. S. Maxwell we of the Nodaway County Medical Society who remain to carry on the work which he so earnestly and capably supported, do hereby express our deep sorrow and regret at his untimely death. Dr. Maxwell will ever be remembered and revered by us in the hallowed precincts of memory.

As a member of this Society and as its president since 1927, Dr. Maxwell's sincerity and loyalty have been outstanding.

We feel our loss deeply, but know that the world was made better by our brother having lived therein.

The Great Physician has called and he has answered.

We as fellow-members of the Nodaway County Medical Society wish to express our deep sorrow at his being taking away, and our sincere sympathy to his bereaved family.

The acting president, Dr. L. E. Dean, Maryville, read the following prepared remembrance in eulogy of Dr. Maxwell:

"Little did we suspect, one month ago when we elected officers for this Society for 1929, that we would have a vacant chair at our very first meeting of the new year. We have lost our president, our leader. The death of Dr. Maxwell came to all of us, the entire medical profession of the county, this Society, and the Sisters at St. Francis Hospital and its staff of physicians, as a great shock.

"We have lost fellow-members from our ranks before, but I dare say that the loss of none has affected us as deeply as this, the death of our good friend and brother, Dr. Maxwell.

"He was a man in his prime and well fitted by experience in the practice of medicine to be of vast benefit to his community. He will be sadly missed by his friends and patients in and near Hopkins. He is gone from our midst and will be greatly missed by his fellows of the medical profession in this county and in Maryville. Our Medical Society has passed a very successful and profitable year under the guidance of our departed president. This is the first time I can recall that an officer of our Society has died during his term of office, and may it be many, many years before such a loss happens again. We are now on the threshold of a new year and may we all endeavor to make this another successful and valuable year. You may all be assured that the officers of this Society will appreciate your cooperation and support."

GEORGE CLARK MOSHER, M.D.

Dr. George C. Mosher, Kansas City, a graduate of the Kentucky School of Medicine, Louisville, 1882, died January 18, 1929, at Trinity Lutheran Hospital, Kansas City, of Vincent's agina and acute leukemia after an illness of three weeks, aged 70.

Dr. Mosher had practiced in Kansas City for forty-five years and since 1890 had risen to national eminence in obstetrics. He was born August 8, 1858, at Blanchard, Ohio.



GEORGE CLARK MOSHER, M.D.
KANSAS CITY, MO.
1858-1929

He attended the Ohio State University and received his medical degree at the Kentucky School of Medicine, Louisville, in 1882. After two years of general practice at Findlay, Ohio, he removed to Kansas City. Six years later he attended clinics in Edinburgh, Berlin, Munich and London, and from 1891 to 1893 he was lecturer on obstetrics at the Kansas City Medical College. In 1893 he studied in the Sloane Maternity Hospital, New York City, and returned to Kansas City, to serve as professor of obstetrics in the Kansas City Medical College, continuing as head of the department of obstetrics when the school became the University of Kansas School of Medicine in 1905. He remained in that chair for five years and was a member of the University Medical Council 1908-10. He was obstetrician to the Kansas City General Hospital and Trinity Lutheran Hospital, consulting obstetrician to St. Vincent's Hospital, and lecturer on obstetrics at the Scarritt Training School for Missionary Nurses. His associates credit him with having trained a majority of the obstetricians in Kansas City and having in-

augurated modern methods of prenatal care. Years ago he was fighting for practices then unknown in the West which now have become matters of essential routine. Eight years ago he announced that he would devote his entire time to his specialty, but his fast friendships formed in other days never allowed him to retire completely from general practice. It is said that he never turned away a charity case. Certain it is that after he had attained professional eminence and a practice in obstetrics by no means confined to his own city, he still remembered and served, with no financial benefit to himself, friends he had formed as a struggling young practitioner.

As a natural result of his interest in infant feeding he became interested in dairy cattle and more especially healthful dairy maintenance. In 1901 he established a model dairy farm at Greenwood, twenty-eight miles southwest of Kansas City. He was treasurer of the World's Fair Holstein Association and his stock won championships at the Louisiana Purchase Exposition in St. Louis. He was president of the Kansas City Medical Milk Commission from 1909 to 1921, president of the Missouri State Association for Improved Dairying in 1906 and 1907, vice president of the Dairy Division of the Missouri State Association for Improved Livestock and president of the Southwest Holstein Association in 1913.

In 1925 Dr. Mosher, who was a member of many scientific societies, was made president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, the first man west of the Mississippi to be elected to that office. He had served as chairman of its committee on maternal welfare since 1921 and as vice president in 1924. He was president of the Jackson County Medical Society in 1917, of the Kansas City Obstetrical Society from 1921 to 1924, and chairman of the Obstetrical Section, Southwest Medical Association in 1921. He was a member of the Tenth International Medical Congress at Berlin in 1890, and of the editorial board of the *American Journal of Obstetrics and Gynecology*. He was a life member of the Toledo Academy of Medicine, the Cincinnati Obstetrical Society, and the Louisville Obstetrical Society. In 1925 he was made an Honor Member of the Jackson County Medical Society. He was also a member of the American College of Surgeons.

One of the dreams nearest Dr. Mosher's heart was that of obstetrical care of first quality at a cost within the means of the

average citizen. He was extraordinarily painstaking with young men in the profession, sometimes giving up a day to the solution of some problem confronting a budding obstetrician, and his indulgence of his patients sometimes went to the length of not only waiting for his own fee, but advancing a sum toward the hospital bill. In 1924 he said: "I desire to see the spirit of philanthropy of our wealthy citizens in Kansas City shown by the liberal endowment of a maternity hospital where the great middle class can have care at a cost within their means. This would be the finest monument a man could leave to endear his name to posterity."

Dr. Mosher is survived by his widow who was before their marriage in 1883 Miss Ida Beagle, of Blissfield, Michigan, one son, George Fred Mosher, Tulsa, and two daughters, Mrs. Arthur H. Place, of Blissfield, and Mrs. Gladys Strong, of Cleveland; one brother, Dr. Donald F. Mosher, a dentist in Kansas City, and two sisters, Mrs. J. F. Binnie, of San Diego, and Mrs. A. M. Finney, of Charleston, West Virginia.

ARTHUR EUGENE EWING, M.D.

Dr. Arthur E. Ewing, St. Louis, a graduate of the St. Louis Medical College (now Washington University School of Medicine), 1883, died January 26, 1929, of paralysis after an illness of a few days, aged 73.

The passing of Dr. Ewing which came suddenly and without premonition found him working up to his full and great capacity three days before his death. He could not have desired it otherwise when the call eventually came.

Dr. Ewing was born of sturdy parentage in Cartersville, Georgia, April 6, 1855, and shortly moved to Gadsden, Alabama. His father practiced medicine (for many years) up to a ripe old age in this scattered community, and many of the sterling traits found in the son can be traced back to him. His mother was Hannah Jane Pettingill. His preliminary education was received in the private schools of Gadsden, and later at Dartmouth College, where he was graduated in 1878, receiving the degree of Bachelor of Arts. During the next two years, while acting as principal of a public school in Gadsden, he studied law. He was admitted to the bar of Alabama in 1879, but two legal cases convinced him that he did not care to continue in the practice of law. In 1880 he entered the St. Louis Medical College (now Washington University School of Medicine) and there received the degree of Doctor of Medicine in 1883. During these years he assisted Drs. John T. Hodgen and

Henry H. Mudd, and from 1882 to 1886 he was in the office of Drs. John Green and M. H. Post. From that apprenticeship he went to Koenigliche Christian-Albrechts University in



ARTHUR EUGENE EWING, M.D.

ST. LOUIS
1855-1929

Kiel, where he remained for two years. He then returned to the former association with Drs. Green and Post, with whom he practiced ophthalmology until the time of their deaths, since when he has been associated with Dr. W. E. Shahan, his nephew, Drs. M. Hayward Post, Jr. and Lawrence T. Post, sons of his former partner. He was married in 1891, at Chattanooga, Tennessee, to Josephine, daughter of Charles Abner and Harriet Frances (Pettingill) Willard, by whom he is survived. From this union there were two daughters, Margaret Frances and Charlotte Eugene, both of whom are living.

During his long career as an ophthalmologist, Dr. Ewing held many professional positions and received many honors. He first became active on the staff of Washington University in 1895, where he became clinical professor of ophthalmology in 1902, a position which he held until one year after the normal age of retirement, following which he was professor emeritus in the same department until his death. In 1912 he received the honorary degree of Master of Arts from his alma mater. He was a member of numerous scientific and medical societies, among them the St. Louis

Academy of Science, the American Academy of Medicine, the American Academy of Ophthalmology and Oto-Laryngology, the American Ophthalmological Society, and the American College of Surgeons, and at one time was vice president of the Ophthalmic Section of the American Medical Association. At the time of his death he was on the staff of Barnes Hospital, the St. Louis Skin and Cancer Hospital, and St. Luke's Hospital. He had an especial affection for this latter institution. Its ophthalmic service is unsurpassed by any institution in the city, largely due to his attention both in regard to instruction of the nurses in the proper care of ophthalmic patients and in a punctilious attendance to the details of the physical equipment necessary for the proper treatment of such cases. He will long be remembered by all those connected with this hospital and his loss will be deeply felt by them. He was a member of Theta Delta Chi, Phi Beta Pi and Sigma Xi. He was for many years an active member of the University Club of St. Louis.

Dr. Ewing contributed much toward ophthalmology, both in the matter of personal contributions and in the education of younger men, many of whom have now come to positions of prominence in the world of ophthalmology. He was a gifted teacher, sometimes dogmatic, but no more so than natural with a strong personality such as his. Probably his keenest interests in his early days of medical practice were centered in the study of the pathology of the ocular tissues to which the many beautiful specimens which he has left bear testimony. In later years, his greatest interest centered about the operating room and in particular the operation for cataract which he had developed along certain lines of his own. Nor up to the end did his mastery of operative technic falter. Three weeks before his death a successful cataract operation was carried through with a hand as steady as fifty years before. He was amazing in this respect to all those who watched him at his work, even though he lived well past his seventieth year.

He invented many instruments; of these, the double fixation forceps, the sharp bread-knife forceps, and a very efficient though simple speculum, deserve special mention.

He always laid great emphasis upon the necessity of careful, conscientious refraction in all cases. In all his clinical association he insisted that refraction must never be turned over to nurses or paid assistants, except under the direct supervision of those having the full medical degree. He never followed fads; he was conservative rather than radical. The justification for this conservatism may be found in the results of his work. Time played

a very small part in his calculations. The end may be said to have justified infinite time and care. This was true not only of his patients' time but of his own. He never seemed to realize, even in his later years, that the day was done and the hour had come to stop. Only a marvelously cooperative household could have been run on the schedule that he kept, as he not infrequently arrived home from a busy day between seven and eight o'clock.

None of his younger confreres ever hesitated to go to him for advice or take a patient to him in consultation. He always found time to give the matter his careful attention and to give his opinions definitely, but in such a way as not to embarrass the younger man. He was firm with his patients. While never holding out false hopes, he was always considerate when it was necessary that the truth should be unpleasant. Through his going, ophthalmology has lost one of its finest personalities. His patients will miss a kindly, cheerful and skillful physician; his associates a wise counselor, a true, constant adviser and friend.

M. HAYWARD POST, M.D.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

- Madison County Medical Society, December 15, 1928.
- Ralls County Medical Society, December 17, 1928.
- Chariton County Medical Society, December 28, 1928.
- Mercer County Medical Society, January 2, 1929.
- Camden County Medical Society, January 11, 1929.
- Benton County Medical Society, February 13, 1929.

MISSOURI STATE MEDICAL ASSOCIATION 72D ANNUAL SESSION Springfield, May 13, 14, 15, 16, 1929

PRELIMINARY PROGRAM

Guests

- Bassoe, Peter, Chicago: Our Present Knowledge of the Psychoneuroses, With Especial Reference to So-Called Neurasthenia.
- Hickey, Preston M., Ann Arbor, Michigan: X-Ray Diagnosis of Fractures.
- Kleinschmidt, H. E., New York City: Tuberculosis in Childhood.
- Pritchard, James Stuart, Battle Creek, Michigan: Pain in Tuberculosis.
- Upham, J. H. J., Columbus: Title to be announced.

Symposiums

Symposium on Fractures:

- Blair, Vilray P., St. Louis: Fractures of Jaw.
 Diveley, Rex L., Kansas City: Fractures of the Upper Extremity.
 O'Reilly, Archer, St. Louis: Fractures of the Spine.
 Hess, H. Lewis, Kansas City: Fractures of the Lower Extremity.
 Discussion to be opened by Dr. LeRoy Abbott, St. Louis, and Dr. Robert McE. Schauffler, Kansas City.
 Hickey, Preston M., Ann Arbor, Michigan: X-Ray Diagnosis of Fractures.

Symposium on Neurology:

- Gibson, Edward T., Kansas City: Neurological Sequellae of Acute Infectious Diseases.
 Robinson, G. Wilse, Kansas City: Sequellae of Encephalitis.
 Carr, A. D., St. Louis: Modern Methods of Treatment in Neurosyphilis.
 Satterfield, Val B., St. Louis: Differential Diagnosis of Common Mental Diseases.
 Lewald, James, St. Louis: The Treatment of Epilepsy.

Symposium on Obstetrics:

- Krebs, Otto, St. Louis: Control of Pain in Childbirth by the Morphin-Scopolamin Method.
 Wilson, Ralph R., Kansas City: Control of Pain in Childbirth by the Gwathmey Method.
 Singleton, J. Milton, Kansas City: Control of Pain in Childbirth by Other Methods.
 James, Joseph D., Springfield: Postpartum and Postnatal Care.
 Clapper, W. L., St. Louis: Management of Difficult Head Presentation.

Scientific Papers

- Battersby, R. S., Columbia: Early Diagnosis of Tuberculosis in Children.
 Clendenning, Logan, Kansas City: Syndrome of Intraperitoneal Hemorrhage.
 Clopton, M. B., St. Louis: Title to be announced.
 Eyermann, Chas. H., St. Louis: Causes of Failure in the Treatment of Allergy.
 Falk, O. P. J., St. Louis: Influence of Etiology on the Prognosis of Heart Disease.
 Gilliland, O. S., Kansas City: Title to be announced.
 Ginsberg, A. Morris, Kansas City: Fatal Hemorrhage from Mitral Stenosis; Report of Two Cases.
 Gorham, F. D., St. Louis: Management of Peptic Ulcer.
 Gradwohl, R. B. H., St. Louis: The Schilling Differential Blood Count; With Reference to Diagnosis and Prognosis.
 Grindon, Joseph, St. Louis: Feigned Eruptions.
 Helwig, F. C., Kansas City: Malta Fever.
 H'Doubler, F. T., Springfield; Goiter.
 Hyland, Robert F., St. Louis: Present Status of Injection Treatment of Varicose Veins.
 Luton, Sinclair, St. Louis: Treatment of Chronic Heart Disease.
 McCutchen, L. G., St. Louis: Title to be announced.
 McGinnis, B. J., and Glenn, E. E., Mt. Vernon: The Treatment of Laryngeal Tuberculosis.
 McMahon, Alphonse, St. Louis: Basal Metabolism in Pulmonary Tuberculosis.
 Moore, Neil S., St. Louis: Further Observations on Non-Calculus Obstructions of the Ureter.
 Pfingsten, C. F., St. Louis: Comparative Study of Coalescent Mastoiditis and Hemorrhagic Mastoiditis.
 Post, Lawrence T., St. Louis: Modern Therapy of Some Common Ocular Disturbances in Children.

Potter, Caryl, St. Joseph: Prevention and Treatment of Complications in Appendicitis, Based on the Study of Two Thousand Cases.

Reder, F., St. Louis: Some of the Causes of Death following Operations for Appendicitis.

Robnett, Dudley A., Columbia: The Uterine Curettage as a Diagnostic Procedure.

Schisler, E. J., St. Louis: Aneurysms of the Aorta; Verification of Diagnosis.

Sophian, A., Kansas City: Meningitis.

Stevens, R. U., Kansas City: Uterine Retrodisplacement and Its Incident Pathology; Illustrated with Lantern Slides.

Tainter, Frank J., St. Louis: Primary Plastic Reconstruction of Lower Lip Following Extensive Removal for Carcinoma; Illustrated with Lantern Slides.

Thierry, Jr., Charles W., St. Louis: Medico-Social Aspects.

Wallace, Jr., C. H., St. Joseph: Title to be announced.

Welch, Albert S., Kansas City: Pulmonary Lesions Secondary to Dental Infection; Illustrated with Lantern Slides.

THE KANSAS CITY ACADEMY OF
MEDICINE

Meeting of November 16, 1928

FRACTURES OF THE SHAFT OF THE
FEMUR.—By DR. FRANK DICKSON.

Fracture of the shaft of the femur may be considered a major surgical condition because the period of incapacity would average six months or longer. There are three accepted methods of treatment:

(1) Open reduction. This is reserved for cases with muscle interposition between the bone fragments, supracondylar fractures with marked displacement of the distal fragment, cases where the closed method of reduction is unsuccessful and, finally, cases which have healed with bad deformity.

(2) Reduction under an anesthetic and immobilization in a cast. This method is not entirely satisfactory. Troublesome points are, (a) securing sufficient traction to bring about reduction and difficulty in maintaining traction in spite of the use of McKenna or Hawley tables; (b) difficulty in preserving alignment while the cast is being applied; (c) atrophy of the soft parts inside the cast interfering with its fitting qualities and allowing anteroposterior bowing to occur.

(3) Gradual reduction and immobilization by traction. This is the most satisfactory method in our experience. Adhesive tape traction is not desirable. Preference is given to the ice tongs over Steinman's pin because of convenience and less likelihood of infection. Thirty pounds weight are applied at once, the limb being cradled in a suspended Thomas splint. X-rays are made frequently for alignment and to determine whether sufficient or too much weight has been applied. At times the fragments refuse to align properly although they can be pulled down to be end-on. To help, we give the patient an anesthetic and manipulate the fracture. This maneuver loosens sharp edges which prevent alignment and in mild cases of muscle interposition may serve to remove this obstacle. After six weeks a plaster cast is applied and the patient allowed up on crutches. After another six weeks, the callus being firm, a walking caliper brace is applied and weight-bearing encouraged. The caliper prevents bending and encourages weight-bearing earlier than otherwise could be carried out.

DISCUSSION

DR. M. J. OWENS: It is sometimes difficult to secure perfect apposition and alignment and lately, for medicolegal reasons, we have been handling most of these cases by open operation. In this manner good X-ray alignment is secured, although as good functional results usually could have been obtained by closed methods of treatment. The most troublesome cases are those with fracture at the lower end of the femur. These are least desirable to operate on because of proximity of the joint. It is important that these patients be observed over a considerable period after they are permitted up.

DR. REX DIVELEY: Less than 5 per cent. of fractures of the lower third need open operation if the pull of the gastrocnemius is properly overcome. We tried the Orr method of "fixed traction" but were successful with only 40 per cent. of our cases.

DR. JOHN HAYDEN: Do you ever do tenotomy of the tendo achillis for fracture of the lower third?

DR. DICKSON, closing: We secure all the gastrocnemius relaxation necessary by flexion of the knee. Usually there is a longer healing time when the tendo achillis is cut. For supracondylar fractures open reduction is done, while for fractures of the lower third traction is satisfactory. I agree with Dr. Owens that better alignment is secured by open reduction but this cannot be made a routine method of treatment. We open approximately 5 per cent. of our fractured femur cases.

OBSERVATION OF PATIENTS FOLLOWING THYROIDECTOMY.—By DR. L. P. ENGEL.

A definite period of readjustment occurs after thyroidectomy of from three weeks' to six months' duration, especially in markedly toxic cases. The patient should be kept under observation during this time. Many patients who have had nontoxic adenomas removed get relief from symptoms not usually associated with hyperthyroidism, such as vertigo, hyperacidity, and muscle pains. If every well defined goiter in patients past twenty-five years of age were operated, 85 per cent. of them would benefit.

Postoperative myxedema occurs more often in cases of exophthalmic goiter because of the radical resections. Mild hypothyroidism occurs in 5 per cent. and a few cases of permanent hypothyroidism develop. Treatment with thyroid extract is highly satisfactory. Other complications are, latent tetany which responds usually to treatment within one year, and injury to the recurrent laryngeal nerve. A pinched nerve recovers, but one divided or caught in a ligature is usually injured permanently. The bilateral abductor paralysis begins within several weeks after operation.

DISCUSSION

DR. P. T. BOHAN: The usual mistake in thyroidectomy is that insufficient gland is removed. High grade postoperative myxedema is comparatively rare. When patients are essentially neurotic the removal of the interstitial or formes frustes type gland does not relieve their symptoms. Patients should not be allowed up too soon after operation. There is danger of sudden death because of degeneration of visceral organs, such as the heart. True, the disturbances in the goiter heart are functional but the heart needs a rest after the goiter is removed.

DR. M. J. OWENS: It is often difficult to make the patient realize that the operation is only an incident in his recovery. The treatment should be continued for six months.

CONGENITAL HYDRONEPHROSIS.—

By DR. J. EDWARD BURNS.

Congenital or primary hydronephrosis is due to an obstruction at or near the ureteropelvic juncture. Sometimes this is due to hypertrophy of the circular muscular layer here but more often contractures and fibrosis are found. Associated with this condition, aberrant vessels may be at the lower pole of the kidney. The kidney may be freely movable with fixation of structures at the ureteropelvic juncture, and sometimes a high implantation of the ureter into the renal pelvis is found. The diagnosis rests primarily on pyelograms. The treatment is operative. If the condition is bilateral, pyeloplasty may be done or the ureter transplanted to the lowermost portion of the renal pelvis; if unilateral and the opposite kidney functions well, nephrectomy should be done.

Case Reports

Case 1. Boy, aged 14. Had intermittent pains at left side all his life and secondary anemia. Left kidney palpable. No indigocarmin from left ureter; total phenolsulphonephthalein output good. X-ray showed catheter deviated to right and elongated renal calyces. Enlarged veins found below the point of narrowing at operation. Nephrectomy with marked postoperative improvement.

Case 2. Boy, aged 15. Pain and swelling at left side extending from costal margin to pelvis and to the right of the midline. Diagnosed leukemia at age of six. Later he fell, injured his left side, developed a swelling, and had a nephrostomy. With recent swelling he had temperature 103°; 40 per cent. 'phthalein from right kidney and none from left; had second degree hypospadias. Nephrectomy. At time of operation, sudden large hemorrhage occurred apparently from an injured vein. Clamps were applied and left in place for nine days, then carefully removed one at a time in the operating room. Another large hemorrhage occurred. The wound was packed. After repeated transfusions the patient recovered and since has gained forty pounds. The capacity of the tumor was 3500 cc.

DISCUSSION

DR. ELLIS W. WILHELMY: The last patient had less than 1,000,000 red cells and a hemoglobin of 25 per cent. at the time of his first transfusion. He was given 250 cc. of blood. The next day he received 340 cc. and then 500 cc. each week so that at the time he left the hospital he had 4,800,000 erythrocytes and 85 per cent. hemoglobin.

DR. MAX GOLDMAN: This last case was a difficult surgical problem and Doctor Burns acted with courage and caution. In any case where there is a large mass with adhesions the operator should exercise caution.

DR. H. E. MCCARTHY: My personal opinion in regard to such cases is that if they reach adult life without difficulty, the kidney should not be removed except for other trouble, such as infection or hemorrhage.

DR. C. K. SMITH: It is difficult for me to consider hydronephrosis as congenital and noncongenital. In thirty cadavers upon which we made pyelograms there was a large percentage with hydronephrosis and ureteral narrowing which we concluded to be congenital deformities. By experiment we found kinks and hydronephrosis developing in animals similar to those found in the human adult, with dilated aberrant vessels after artificial obstruction of the lower part of the ureter. I believe the opposite kidney and ureter should be pyelogrammed before any operation is undertaken on the kidney.

Meeting of November 30, 1928

HEADACHE.—By DR. P. T. BOHAN.

I will discuss migraine or headache of nervous exhaustion. There are three diagnostic criteria: (1) inheritance; (2) onset in youth; (3) periodicity, and to these I will add a fourth, (4) it occurs in neuropathic individuals.

It should be emphasized that the pain is not necessarily hemicranial; that visual disturbances are not necessarily present in all cases; that vomiting may or may not be an associated symptom, and that gastric phenomena may precede or accompany the head pain. If it precedes, I believe it has nothing to do with the headache.

Theories of origin: (a) Neurosis, a functional nervous derangement. (b) Poison theory. Current literature suggests that migraine is on an organic basis. One author considers it due to duodenal paralysis or obstruction, and his treatment consists of calomel, a saline, and forced feeding. Another would treat it as an allergic phenomenon. A third believes there is an increased amount of bilirubin in the blood and he stops all proteins.

Case 1. Man, 42 years old. His sister and an aunt had sick headaches. His own attacks started at the age of twenty-four, were at first bilateral, occurred every three weeks and lasted three days, but recently have occurred weekly, are more or less constant and are unilateral. They occur in the middle of the morning, are increased by eating sweets and by mental strain. Vomiting, which is preceded by nausea, gives partial relief. Blood pressure 102/74; Wassermann negative; van den Bergh negative. After three weeks in the hospital his weight increased from 137 pounds to 149 pounds.

Case 2. Woman, 29 years old. Married six years, no children. Headaches started at age of twenty-one. In 1926 hysterectomy performed while patient was in shock for ruptured uterus from ectopic pregnancy. Went home after twenty days but has since had monthly headache of six day duration, with vomiting. These attacks begin suddenly with pain extending from the occiput to the right side. Father and sister had sick headaches. This patient was examined by an allergy specialist, had three hundred skin tests made, and was found sensitive to wheat, asparagus, beans, peas, muskmelon and cheese. She was put on a special diet and given morphin as often as six times a day. She lost twenty pounds in weight and her headaches increased in severity. Our treatment: rest, bromids, luminal, and the very food to which she was found sensitive. She had only five hypodermics while in the hospital, and went from 106 to 121 pounds in weight in fifteen days.

DISCUSSION

DR. LEA REILLY: There seems to be a close relation between migraine and epilepsy, in the treatment and in the nervous explosions that occur. Migraine usually ceases at the menopause. Good reports have followed treatment in which ketosis is established by starvation.

DR. LOGAN CLENDENING: In a special clinic for patients with chronic headache without demonstrable organic basis such as brain tumor or hypertension, the impression gained was that most of these patients suffered with a neurosis. I do not consider migraine the same as a fatigue neurosis. Many such patients do not improve with glasses, operations, or massage. The explanation offered for their infirmity often depends largely upon the view taken by the particular specialist into whose hands these patients fall.

DR. RALPH MAJOR: A type of headache, of which

we have seen several examples recently, is the so-called indurative headache which begins at the occiput and moves forward up over the head. The trapezius is usually hard with nodules at its border. These headaches are produced almost certainly by an infection and their underlying pathology is probably a myositis.

Certain headaches are due to constriction of the cerebral arteries produced by reflex stimuli. Examples of this are seen in the headache following the drinking of very cold liquids.

The treatment by producing ketosis, referred to by Dr. Reilly, is interesting. We know that ketosis may lead to numbness and actual unconsciousness, which shows that the ketone bodies have an anesthetic action. This probably explains the results obtained from this treatment.

DR. O. J. DIXON: I wish to present a patient who had headaches for ten years following the "flu." She thought it due to special foods. A nasal operation did not help her. Four years ago I operated on her for a frontal brain abscess, and one year afterward, unbeknown to me, she had a submucous resection performed. I think her headaches have nothing to do with the brain abscess.

DR. BOHAN, in closing: I believe no one as yet knows just what are the underlying factors in migraine.

THROMBOPHLEBITIS OF THE HEAD
AND NECK.—By DR. O. J. DIXON.

All but one of my patients who were afflicted with this condition are now dead, and I am not sure about this one. I wish to speak about cases of thrombophlebitis of the internal jugular vein in relation to infection of the faucial tonsils.

Case Report

An eighteen year old nurse had her first attack of tonsillitis with a chill every twenty-four hours. The tonsillar membrane that had formed gradually disappeared, the patient took on the faded-out appearance characteristic of septicemia, and died in five days. The diagnosis, which was corroborated by autopsy, was thrombophlebitis of the internal jugular vein and meningitis.

Dr. Waldapfel thought abscess formation was the important factor in this case and not thrombophlebitis. It strikes me that the condition is comparable with thrombophlebitis of the sigmoid sinus which occurs in connection with mastoiditis. It may be better to operate on these cases and expose the vein on the basis of a phlebitis without complete thrombosis.

PRESENTATION OF CASES

Case 1. Boy, aged 12. Had mastoiditis, was operated, and continued to have chills. A second operation was performed and a clot removed from the sigmoid sinus. A third operation was done and the internal jugular vein ligated. I believe that if this patient had been let alone after the second operation he would have been just as well off because thrombosis of the internal jugular vein is an ascending process, therefore ligation of the vein in sinus thrombosis is an unnecessary procedure.

Case 2. Girl, aged 13. Two years ago had mastoiditis and developed symptoms of brain abscess. At operation a subsigmoid abscess was found and drained. A catheter was also inserted into the cerebellum and a cerebellar abscess drained. This patient had sinus thrombosis and had run a septic course with a discharging ear for some time. She had a single chill, a headache, and vomited; and this meant brain abscess.

DISCUSSION

DR. F. C. HELWIG: In regard to the first case, that of the nurse, at autopsy a septic thrombus was found in the internal jugular vein extending as far as the bulb. According to Waldapfel and Fraenckel such a thrombosis is supposed to extend from the tonsil by way of the tonsillar veins, but in this and another case of ours, repeated sections of the tonsils revealed no abscess and no venous thrombosis. Another theory is that extension might have occurred through a suppurating parajugular lymph gland. We found streptococci in the dilated lymphatics of the jugular vein and hence felt this to be a lymphatic dissemination. Both cases revealed septic lung infarcts which I believe were present from the time the thrombus was forming.

DR. L. P. ENGEL: Does Doctor Dixon think that with infection of the upper lip spreading, thrombophlebitis could occur in this manner?

DR. DIXON, in closing: I had not thought of this. More autopsy studies will be required before the question can be answered.

Meeting of December 14, 1928

UNUSUAL CASES.—By DR. C. C. DENNIE.

Case 1. Woman, age 21 years. Maculopapular rash over the left scapula, resembling lichen planus. Had syphilis one year ago and was treated with some neosalvarsan and a little mercury. The present lesion is a rare tertiary manifestation. It is my opinion that specific treatment often merely hurries the patient through the first two stages of the disease. The organisms are not killed but are reduced in number.

Case 2. Man, age 25 years. At the age of twenty, took some neosalvarsan but no mercury. Five years later, painless indurated lesion developed at right side of tongue. Clinically, it was indistinguishable from carcinoma. On intravenous sodium iodide, the lesion disappeared within three weeks.

Case 3. Man, age 46 years. Ten years ago began to have pain in hip. A few years later an osteopath fractured one femur and its acetabulum so that there was about three inches shortening of the leg. The patient went back and the osteopath obligingly fractured his other leg. This is a case of bilateral Charcot's joint. The patient has been treated with potassium iodide and mercury, but X-ray pictures made from time to time show that the lesion is gradually progressing. However, the patient can walk now without the aid of crutches because nature has thrown up an irregular bony support around the damaged joint.

DISCUSSION

DR. PAUL STOOKEY: In my experience, gumma of the tongue is rare. When a patient has an ulcer of the tongue and a four plus Wassermann, he is usually treated for the four plus Wassermann. However, I believe that most gummas of the tongue undergo malignant degeneration so that the histologic picture is one of both lues and carcinoma. Therefore, in a patient past forty years of age with an ulcer of the tongue, the possibilities are great that his lesion is malignant and small that it is gumma.

DR. NELSE F. OCKERBLAD: I saw a colored man with a primary lesion of the breast. After a single injection of neosalvarsan it disappeared and the patient went for three years without treatment, only to return broken up with secondaries. It seemed in this case that neosalvarsan only lengthened the time of appearance and did not prevent the development of tertiary lesions.

DR. DENNIE, closing: The man with the tongue

lesion was young, had no pain and no interference with speech, and it was on this basis that gumma was diagnosed instead of carcinoma.

KIDNEY CASES.—By DR. N. F. OCKERBLAD.

Case 1. Woman, age 47 years. Had nephrectomy a few years ago, presumably for pyonephritis. Last year she had a large amount of pus in the urine and her blood urea was 120. She showed 400 cc. of residual urine. Her cystitis was treated and care was taken to conserve the one remaining kidney. She had a four plus Wassermann and was put on neosalvarsan. The nephrectomy that had been done was probably needless. It is my opinion that the patient had pyelonephritis aggravated by lues. She is now in a good state of health.

Case 2. Man, age 54 years. In 1918 had a stone removed from left kidney and there was discussion as to the advisability of doing a nephrectomy at the time. A year ago, had pain at the right upper abdominal quadrant and pyuria. The cystoscope revealed no left trigonal markings. The right ureter was carefully plugged with a catheter and another catheter was put into the bladder. Four ounces of urine with pus came from the ureteral catheter and none from the bladder catheter. Our diagnosis was congenital solitary left kidney. The X-ray plate shows a dilated right renal pelvis and no shadow of the left kidney. The patient has improved under treatment of the right-sided pyelitis.

Case 3. Man, age 30 years. Had dysuria for four years and hematuria on one occasion. When I first saw him two years ago he had a bladder contracted to a capacity of 20 cc. and a tuberculoma at the orifice of the right ureter. Urine obtained from the left ureter was tested with good results. Under sacral anesthesia a pyelogram of the right kidney was made. The diagnosis was tuberculosis and a nephrectomy was performed. Now, after two years, he returns with nocturia and possibly the remaining left kidney is involved. Tuberculin might be considered for treatment in this case.

DISCUSSION

DR. PAUL STOOKEY: I'd like to hear Dr. Ockerblad discuss the four plus Wassermann in association with kidney disease.

DR. OCKERBLAD, closing: I can say nothing about the histopathology of that case. Clinically, the patient cleared up on neosalvarsan. There are numerous similar cases.

HEAT SENSITIVENESS AND ALLERGY.—By DR. W. W. DUKE.

Case 1. Woman, age 20 years. Whenever she gets hot, has hives, feels weak. Pure heat sensitiveness (urticaria calorica).

This patient is only moderately sensitive to heat. If she were less sensitive she might get an overdose while in the sunshine and have sunstroke. Heat sensitiveness is also responsible for Weir Mitchell neurasthenia and Thomas Lewis effort syndrome. It is a common cause of vasomotor rhinitis, cough and eczema. These patients have an unstable temperature and I think the heat sensitiveness is due to some injury to the heat-regulating mechanism, possibly originally the result of some febrile disease.

Case 2. Man, age 30 years. Attacks of stoppage of the nose since the age of twelve. A winter case of cold sensitiveness. The patient was treated with cold baths and has improved.

Case 4. Woman, age 50 years. Daily asthmatic

attacks for eight years. Combined heat and cold sensitiveness.

This patient is sensitive to body heat when she breathes cold air. If such patients can get rid of one, they can usually tolerate the other comfortably. She was also sensitive to milk. Treatment consisted of giving her only a moderate amount of exercise, and of desensitising to milk. In five months she has had only two attacks, brought on by too much milk.

Case 4, Man, age 50 years. Nose stoppage and continuous headache for 10 years. Had five nasal operations and three changes of climate. Is sensitive to pork and eggs.

This is an emanation type of sensitiveness. Pork may cause allergic phenomena in two ways: by emanation to the nose, and by an effect after absorption into the body. This type of allergic headache should not be confused with migraine.

Case 5. Boy, age 6 years. Severe type of eczema due to egg sensitiveness.

This child did not recover until eggs were taken out of the house. If somebody with egg on the breath comes near the child, he may have an eczematous eruption.

Case 6. Woman, age 50 years. Is sensitive to coal smoke, eggs, heat, and cold. Has an achylia.

We find achylia in one of every three asthmatics. These patients may develop pernicious anemia. There is often a return of gastric acid on a liver diet.

If cases of asthma are carefully worked out the results obtained in treatment are very gratifying.

DISCUSSION

DR. D. D. STOFER: The routine tests for foods are only half of the tests that should be run in making a diagnosis.

DR. RALPH MAJOR: I saw a traveling salesman whose hands and face would swell when he hurried to catch a train. If he sat down and cooled off, the swelling disappeared. This proved to be a case of heat sensitiveness. Adrenalin controlled his attacks. Perhaps the local neurovascular reaction is due to local discharges of histamine as was suggested by recent investigators.

DR. FRANK C. NEFF: I knew of a child sensitive to egg. A washed egg spoon touched to his lips brought on an attack of hives.

DR. C. C. DENNIE: Some drugs applied externally, such as picric acid, may lead to allergic phenomena at some other part of the body. The reaction induced may be severe enough to affect the central nervous system. Two per cent. of all people are sensitive to picric acid.

DR. HOMER BEAL: Undoubtedly some unnecessary surgery on the nose and throat has been done in allergic conditions. In our experience, there are more women affected with allergic conditions involving the nose and throat than there are men.

DR. B. LANDIS ELLIOTT: I was called to see a girl who was found unconscious in a room adjoining one which had been fumigated with hydrocyanic acid and picric acid. She had a fever of 100 degrees and developed pulmonary edema. There is a question as to whether the cyanide or the picric acid was responsible.

DR. JOHN HAYDEN: I once saw a patient who had hives when not pregnant. Her gallbladder was removed under suspicion, but the hives returned; so our advice was to get pregnant.

DR. DUKE: Some patients with allergic phenomena are relieved by pregnancy and some between pregnancies. In regard to Dr. Major's discussion, histamine will produce allergic symptoms in anybody.

My conception of the heat regulating mechanism is, that heat leaves the body by way of the skin,

nose and lungs through hyperemia induced under the influence of this mechanism. With injury to the heat regulating mechanism, there are phenomena manifest in the skin, nose and lungs.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society met following a banquet at the Tiger Hotel, December 4, 1928. The meeting was called to order by the president, Dr. M. Pinson Neal, Columbia.

Dr. Neal appointed a committee to audit the books, and the committee's report was accepted.

The membership committee reported favorably on the applications of Drs. Schattyn and Bruner, and Dr. Robert H. Simpson. They were unanimously elected to membership.

Dr. E. D. Baskett, Columbia, reported for the entertainment committee.

The president, Dr. M. Pinson Neal, Columbia, thanked the committee chairmen for their cooperation and gave a resume of the Society's activities of the past year.

Dr. E. D. Baskett moved that we send a night letter to Dr. R. R. Robinson, Hanover, New Mexico. Seconded and carried.

Dr. A. R. McComas, Surgeon, moved that Dr. Charles L. Lavender, Columbia, be made an Honor Member. Seconded and carried.

Dr. Lavender acknowledged the honor.

The applications of Dr. Karl Dietrich and Dr. G. Kenneth Coonse, Columbia, were referred to the membership committee.

A talk was made by Dr. A. R. McComas, Surgeon, on the work of the Committee on Public Policy and other matters. His remarks were discussed by Drs. Nifong, Simpson, Schattyn and Bruner.

Dr. M. Pinson Neal relinquished the chair to Dr. W. R. Shaefer, Columbia, who made a few remarks.

It was moved, seconded and carried, that flowers be sent to Drs. Frank B. Williamson and R. S. Battersby, Columbia, who are ill.

HUGH P. MUIR, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society held its regular meeting Wednesday evening, January 16, 1929, at St. Joseph.

Dr. Herman E. Pearse, Kansas City, addressed the meeting on the County Health Unit. He stated that the County Health Unit was no longer considered an experiment but has been employed by many counties for the past ten years. In 1928, according to Dr. Pearse, eighty-four new County Health Units were formed and in only seven counties were the Units abandoned.

Following Dr. Pearse's address a general discussion was entered into concerning the merits of a County Health Unit. Many members were opposed to such a Unit.

Dr. George M. Boteler, St. Joseph, moved that the Society endorse the County Health Unit provided the county court employed a trained personnel and appointed a medical advisory board from this Society. The motion was seconded and carried.

T. L. HOWDEN, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

Dr. Arthur D. Knabb, Springfield, President of the Greene County Medical Society for 1929, has been a member of the Greene County Medical Society since 1914. He served the Society as a delegate to the State Medical Meeting in 1926 and 1927, was vice president of the Greene County Medical Society in

1928, and was first vice president of the Southwest Missouri Medical Society 1928-1929. He has practiced medicine in Springfield continuously since his graduation except for the period of the World War



ARTHUR D. KNABB, M.D., Springfield
PRESIDENT, 1929

when he entered the service as a lieutenant in the Medical Reserve Corps and served for one year in France.

Dr. Knabb is a native Missourian, born at Hartsville, Wright County, in 1889. He obtained his education in the Springfield public schools and graduated from the high school in that city, after which he entered the St. Louis University School of Medicine from which he received his medical diploma in 1913. After an internship in the Alexian Brothers Hospital, St. Louis, he moved to Springfield to enter private practice.

The Greene County Medical Society is looking forward to the coming meeting of the State Medical Association at Springfield next May and planning for a cordial reception and entertainment of the members.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met in regular session January 8, 1929, at Walker's Cafe, Joplin, where a banquet was served to twenty-seven members and twenty-two visitors. After the banquet Dr. J. L. Sims, Joplin, opened the meeting and praised Dr. Roy E. Myers, Joplin, the retiring secretary for the good work he has done for the Society during the past year. Dr. Sims then introduced Dr. E. D. Hatcher, Carthage, the incoming president, and Dr. H. L. Wilbur, Joplin, the incoming secretary. Dr. L. P. Engel, Kansas City, Missouri, and Dr. F. C. Helwig, Kansas City, Kansas, both of the medical department of the University of Kansas, and Dr. R. E. Duncan, Kansas City, Missouri, were introduced as the three speakers of the evening. Dr. E. D. Hatcher, Carthage, took charge of the meeting and appointed Dr. W. H. Mallory, Joplin, Dr. B. A. Dumbauld, Webb City, and Dr. S. A. Grantham, Joplin, to draft resolutions of respect to the

memory of Dr. B. M. Henry, Alba, who died January 5.

The program for the evening consisted of a symposium on goiter.

Dr. L. P. Engel, Kansas City, Missouri, opened the symposium with case reports, giving the history, findings, preoperative treatment, operation, and post-operative treatment.

Dr. F. C. Helwig, Kansas City, Kansas, talked on the pathology of each case, pointing out the pathology of each gland and how it caused the symptoms referred to by Dr. Engel. He exhibited the glands in question. Twelve case histories were read and discussed.

Dr. R. E. Duncan, Kansas City, Missouri, spoke on the laboratory diagnosis of goiter, the taking and value of the basal metabolic rate.

Meeting of January 15, 1929

The Society met at the Y. M. C. A., Joplin, with vice president Roy E. Myers, Joplin, in the chair. There were fourteen members and three visitors present. The minutes of the last meeting were read and approved.

The essayist of the evening was Dr. H. E. Marchbanks, Pittsburg, Kansas, who spoke on the electrocardiograph and its use in diseases of the heart. He gave case reports and exhibited tracings, emphasizing the value of the tracings in angina pectoris and bundle branch block. He also showed X-ray pictures of several cases and a specimen of a heart weighing 1105 grams.

Meeting of January 22, 1929

The Society met at the Joplin Y. M. C. A. at eight o'clock. The president, Dr. E. D. Hatcher, Carthage, presided. The minutes of the last meeting were read and approved.

Dr. J. L. Sims, Joplin, reported a case of double pyosalpinx.

Dr. J. W. Clark, Carterville, reported the findings of several cases of scarlet fever. The subject was discussed by several of the members.

It was moved that the president, Dr. E. D. Hatcher, Carthage, and the secretary, Dr. H. L. Wilbur, Joplin, confer with the secretary of the local Dental Society and arrange for a joint meeting, and to invite Dr. Russell Haden, Kansas City, to address the gathering. Motion seconded and carried.

On motion, seconded and carried, the secretary was instructed to invite Dr. James Stewart, Jefferson City, Secretary of the State Board of Health, to address the Society at the January 29 meeting.

Meeting of January 29, 1929

The meeting was held at the Joplin Y. M. C. A. at 8:00 p. m., with the president, Dr. E. D. Hatcher, Carthage, in the chair. There were twenty-nine members and twenty visitors present. The minutes of the last meeting were read and approved.

The committee on resolutions on the death of Dr. B. M. Henry, Alba, not having reported, the secretary was instructed to again write the committee for a report. Dr. B. A. Dumbauld, Webb City, requested that Dr. E. D. James, Joplin, act for him on this committee.

Dr. James Stewart, Jefferson City, Secretary of the State Board of Health, was introduced and gave an interesting talk on the functions of the State Board of Health, stressing the state laboratory and public health service.

Dr. H. L. Kerr, Crane, President of the State Board of Health, was introduced and made a short talk on the work of his Board.

The question of a full time health officer was discussed in a very spirited manner. On motion, seconded and carried, the Society's endorsement on

February 14, 1928, of the program for a full time health officer was reconsidered. On motion, seconded and carried, the president, Dr. E. D. Hatcher, Carthage, appointed a committee to look into the proposition and report at a later date. The members of the committee are Dr. H. A. LaForce, Carthage, Dr. R. M. James, Joplin, and Dr. B. A. Dum-bauld, Webb City.

Meeting of February 5, 1929

The Society met at 7:30 p. m. at the Joplin Y. M. C. A. Dr. J. L. Sims, Joplin, was appointed to take the chair in the absence of the president and vice president. There were eighteen members and nine visitors present. The minutes of the last meeting were read and approved. The resolutions committee offered the following resolutions on the death of Dr. B. M. Henry:

WHEREAS, Our friend and confrere, Dr. B. M. Henry, of Alba, Missouri, has been taken from us by death, and

WHEREAS, By his many years of service as a physician, citizen and friend to the people of his community and his loyal active service in this Society he had endeared himself to all who knew him, therefore be it

Resolved, That we express our sincerest regrets at his loss and our sympathy to his family and friends, and be it further

Resolved, That a copy of this resolution be made a part of the permanent record and a copy sent to his family.

DR. W. H. MALLORY,
DR. S. A. GRANTHAM,
DR. E. D. JAMES,
Committee.

On motion the resolution was adopted.

Dr. L. C. Chenoweth, Joplin, moved that the secretary forward a letter to Dr. James Stewart, Jefferson City, Secretary of the State Board of Health, stating that the Society favors the restoration of license to practice medicine to J. M. Jeans, of Prosperity. Motion seconded by Dr. A. B. Clark, Joplin, and carried.

It was moved, seconded, and carried, that the Society oppose the Sheppard-Towner Maternity Act and its successor, the Sheppard-Towner-Newton Maternity Bill, and that the secretary write our Representative to that effect.

Dr. Richard Paddock, St. Louis, the essayist of the evening, was introduced and spoke on "The Intracranial Injuries of the Newly Born." Dr. Paddock covered the field very thoroughly, and with specimens and photographs showed how pressure on certain parts of the head would stretch the different membranes of the brain to the point of rupture with hemorrhage that would frequently prove fatal. The paper was enjoyed by all and was discussed by Dr. Sims, Burch, Clark, Chenoweth, and James.

H. L. WILBUR, M.D., Secretary.

JOHNSON COUNTY MEDICAL SOCIETY

The Johnson County Medical Society met January 18, 1929, and elected the following officers for 1929: President, Dr. S. A. Murray, Holden; vice president, Dr. W. G. Thompson, Holden; secretary, Dr. T. J. Draper, Warrensburg, reelected; delegate, Dr. W. E. Johnson, Warrensburg (term expires, 1930).

T. J. DRAPER, M.D., Secretary.

MARION COUNTY MEDICAL SOCIETY

The regular meeting of the Marion County Medical Society was held at the Mark Twain Hotel, Han-

nibal, February 1, 1929, at 7:30 p. m. A satisfying banquet was served preceding the meeting to the following members and guests: Drs. J. J. Bourn, H. O. Daniel, W. F. Francka, H. B. Goodrich, J. W. Hardesty, I. E. Hill, E. T. Hornback, E. M. Lucke, E. R. Motley, T. A. Roselle, C. E. Salyer, U. S. Smith and F. E. Sultzman, of Hannibal; Dr. C. W. Hamlin, Palmyra; Dr. P. J. Reichmann, Oakwood. Guests, Dr. Charles Hugh Neilson, St. Louis; Dr. Grant Irwin, Dr. Harold Swanberg, and Dr. Bitter, of Quincy, Illinois; Dr. R. L. Andrae, Louisiana; Dr. E. M. Bartlett, Clarksville; Dr. Arthur B. Blue and Dr. Opp, Hannibal; Dr. P. H. Dechow, Kinderhook, Illinois; Dr. R. J. Gay, Bowling Green.

Dr. Charles Hugh Neilson, associate dean and professor of internal medicine, St. Louis University School of Medicine, read an interesting and instructive paper on "The Care of the Patient Before Operation," which was enthusiastically received. The general discussion which followed, entered into by the majority of those present, was opened by Drs. J. W. Hardesty and I. E. Hill, of Hannibal.

H. B. GODDRICH, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society met following the regular staff meeting of the Sisters at St. Francis Hospital, Maryville, January 11, 1929, in the first-floor lecture room of the hospital. The meeting was opened by the vice president, Dr. L. E. Dean, Maryville, at 7:45 p. m. The attendance was small because of the intensely cold weather. The following members responded to roll call: Drs. C. T. Bell, L. E. Dean, C. V. Martin, R. C. Person, F. M. Ryan, J. Harold Ryan, Frank C. Wallis and William M. Wallis, Jr. of Maryville; Dr. W. M. Hindman, Burlington Junction; Dr. Charles D. Humberd, Barnard. Drs. J. G. Montgomery and Donald R. Black, of Kansas City, by courtesy of the Kansas City Southwest Clinical Society, were present as invited guests. The minutes of the December 4 meeting were read and approved.

The Secretary reread Dr. Frank C. Wallis' resolution of last month to amend the Society's By-Laws by increasing the annual dues to \$4.00. Dr. Wallis moved that the resolution be adopted as read. Dr. C. V. Martin, Maryville, seconded the motion. After questioning and discussion by Dr. C. T. Bell, Maryville, the motion carried.

The Secretary reread Dr. C. V. Martin's resolution of last month to amend the Society's By-Laws to provide for the remission of dues of members who are incapacitated from practice. Dr. Martin moved that the resolution be adopted as read. The motion was seconded by Dr. F. C. Wallis, Maryville, and carried.

The following amendments to the By-Laws are therefore effective from this date:

"Chapter V, Section 1. The annual dues of each member of this Society shall be twelve dollars. Four dollars of such dues shall be used to defray current expenses of the Society, and eight dollars shall be forwarded by the secretary with his annual report to the Secretary of the Missouri State Medical Association. The annual dues shall be payable on January 1 of each year. Any member who shall fail to pay his annual dues by April 1 shall be held as suspended without action on the part of the Society. A member suspended for nonpayment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members."

"Chapter V, Section 2. Members of this Society who shall become incapacitated from practice by

reason of illness or the infirmities of age may, by a vote of the majority of the members present at a regular meeting of the Society, be listed as Honor Members of this Society with all of the privileges of regular members, but they shall not be required to pay the annual dues to the Society."

The Society having lost its energetic and respected president, Dr. H. S. Maxwell, Hopkins, by his death on January 5, the following resolutions, composed by Drs. C. V. Martin and R. C. Person, Maryville, as a committee appointed by the vice president, were read to the Society by the secretary and unanimously adopted:

Divine Providence having taken from our midst Dr. H. S. Maxwell, we of the Nodaway County Medical Society who remain to carry on the work which he so earnestly and capably supported, do hereby express our deep sorrow and regret at his untimely death. Dr. Maxwell will ever be remembered and revered by us in the hallowed precincts of memory.

As a member of this Society and as its president since 1927, Dr. Maxwell's sincerity and loyalty have been outstanding.

We feel our loss deeply, but know that the world was made better by our brother having lived therein.

The Great Physician has called and he has answered.

We as fellow members of the Nodaway County Medical Society wish hereby to express our deep sorrow at his being taken away and our sincere sympathy to his bereaved family.

The acting president, Dr. L. E. Dean, Maryville, read the following prepared remembrance in eulogy of Dr. Maxwell:

"Little did we suspect, one month ago when we elected officers for 1929, that we would have a vacant chair at our very first meeting of the new year. We have lost our president, our leader. The death of Dr. Maxwell came to all of us, the entire medical profession of the county, this Society, the Sisters at St. Francis Hospital and its staff of physicians, as a great shock.

"We have lost fellow members from our ranks before, but I dare say that the loss of none has affected us as deeply as this, the death of our good friend and brother, Dr. Maxwell.

"He was a man in his prime and well fitted by experience in the practice of medicine to be of vast benefit to his community. He will be sadly missed by his friends and patients in and near Hopkins. He is gone from our midst and will be greatly missed by his fellows of the medical profession in this county and in Maryville. Our Medical Society has passed a very successful and profitable year under the guidance of our departed president. This is the first time I can recall that an officer of our Society has died during his term of office and may it be many, many years before such a loss occurs again.

"We are now on the threshold of a new year and may we all endeavor to make this another successful and valuable year. You may all be assured that the officers of this Society will appreciate your co-operation and support."

The Society's thanks were extended to Drs. C. T. Bell and J. Harold Ryan, Maryville, who acted as a committee on transportation at Dr. Maxwell's funeral and who secured the floral offerings.

The treasurer, Dr. Chas. D. Humberd, Barnard, read his annual report for 1928. The balance in the treasury at the close of that year was \$59.75. Dr. F. M. Ryan, Maryville, moved that the report be accepted. Dr. R. C. Person, Maryville, seconded the motion, which carried.

Dr. C. T. Bell, Maryville, moved that the secretary be instructed to write the secretaries of the Buchanan County Medical Society and the Missouri State Medical Association for data and information on the probable attitudes toward the ideals of the medical profession of the two respective candidates for Congressman, one of whom will be

elected at a special election next month to succeed our late Representative, Honorable Charles L. Faust, St. Joseph, on whom we always relied to support every good work in which organized medicine was interested. Dr. F. M. Ryan, Maryville, seconded the motion, which carried.

The following topics were suggested for the Society's consideration at the February meeting: Neuritis, jaundice, treatment of the toxemias of pregnancy, fractures, focal infections.

The meeting was turned over to our Kansas City guests for the scientific program.

Dr. J. G. Montgomery gave a careful and extensive talk on "Differential Diagnosis in Acute Abdominal Diseases," with case histories, and illustrated his subject with lantern slides.

Dr. Donald R. Black, assistant professor of medicine in the University of Kansas Medical School, read an excellent paper on "The Anemias," with especial attention to the work which has been recently done on liver extract as a curative agent in pernicious anemia, giving the viewpoint of the internist in all essentials. Dr. Black's subject was illustrated with lantern slides.

These papers were very cordially received and thoroughly discussed by nearly every one in the audience.

On motion by Dr. Chas. D. Humberd, Barnard, seconded by Dr. J. H. Ryan, Maryville, the Society adjourned at 11:30 p. m. All except two of those present extended the adjournment to the Knox Cafe for another hour's consideration of soup and sandwiches.

CHAS. D. HUMBERD, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held in the First Congregational Church of Webster Groves, Wednesday, January 9, 1929, at 3 p. m. The meeting was called to order by the president, Dr. Arthur W. Westrup, Webster Groves. The minutes of the December meeting were read and approved. The following members were present: Dr. L. C. Obrock, St. Louis; Drs. H. N. Corley, C. P. Dyer and Arthur W. Westrup, of Webster Groves; Drs. E. O. Breckenridge, Garnett Jones and E. E. Tremain, of Maplewood; Dr. J. H. Armstrong, Kirkwood; Dr. Frank P. Knabb, Valley Park; Dr. Otto W. Koch, Clayton; Dr. J. H. Sutter, University City; Dr. Paul R. Whitener, Overland. Guests: Dr. E. J. Goodwin, St. Louis, Secretary of the State Medical Association, and Dr. B. K. Stumberg, St. Charles.

The report of the treasurer was read and turned over to Drs. J. H. Sutter and H. N. Corley, for auditing.

The following committees were appointed by the president for the fiscal year 1929:

Program and Publicity Committee: Dr. Wm. F. O'Malley, Webster Groves, chairman; Dr. J. H. Armstrong, Kirkwood; Dr. E. E. Tremain, Maplewood.

Legislative and Public Health Committee: Dr. R. B. Denny, Creve Coeur, chairman; Dr. P. M. Brossard, Maplewood; Dr. Carl C. Irick, Webster Groves.

Entertainment Committee: Dr. Otto W. Koch, Clayton, chairman; Dr. C. P. Dyer, Webster Groves; Dr. E. O. Breckenridge, Maplewood.

Membership Committee: Dr. A. C. Hofsommer, Webster Groves, chairman; Dr. H. N. Corley, Webster Groves; Dr. O. D. Seabaugh, Kirkwood.

Necrology Committee: Dr. F. P. Knabb, Valley Park, chairman; Dr. Garnett Jones, Maplewood; Dr. Ralph E. Gaston, Webster Groves.

The scientific program was given by Dr. E. J. Goodwin, St. Louis, Secretary of the State Medical Association. His topic was "Why I Should Belong to the County Medical Society." It was very instructive as well as interesting and helpful. A general discussion followed in which every one present participated.

It was moved, seconded and carried, that Dr. Howard Carter, St. Louis, be sent a letter of greeting from the Society.

Dr. L. C. Obrock, St. Louis, was elected a corresponding member from the St. Louis Medical Society.

E. E. TREMAIN, M.D., Secretary.

ST. LOUIS MEDICAL SOCIETY

Annual Meeting of the General Society, January 8, 1929

The meeting was called to order at 8:45 p. m. by the president, Dr. Charles Hugh Neilson.

The retiring president, Dr. Charles Hugh Neilson, delivered an address.

Dr. Cleveland H. Shutt then delivered his inaugural address.

The following telegram from Dr. Frank I. Ridge, Kansas City, President, and Dr. A. R. McComas, Surgeon, Chairman of the Council of the Missouri State Medical Association, was read:

"The Executive Committee of the Missouri State Medical Association salutes and congratulates the St. Louis Medical Society on the occasion of the inauguration of its officers for the year nineteen twenty-nine, the ninety-second birthday of the Society. We express the hope that during nineteen twenty-nine and succeeding years the St. Louis Medical Society will keep alive the early traditions and memories of the great men who have graced its roster. The executive committee of the State Medical Association after investigation and mature deliberation have decided to recommend to the house of delegates at the Springfield session, next May, the financing of a full time secretary for each of the larger unit societies of the State Association for one year, provided that such unit society will guarantee to continue the plan for at least two years thereafter. We have further decided to recommend this plan to the St. Louis Medical Society at this time and will recommend its adoption by other units as the finances of the State Medical Association will permit. This communication will be presented to you by Doctor Wenzel C. Gayler, your counselor and member of the Executive Committee."

The following telegram from Dr. Olin West, Chicago, Secretary of the American Medical Association, was read by Dr. Shutt:

"Just learned of proposal of St. Louis Medical Society with cooperation of Missouri State Medical Association to have full time Executive Secretary. Congratulations to city and state societies on splendid spirit of cooperation. Am convinced that with proper selection, plan will prove so valuable to your society that it will be made permanent."

The meeting adjourned at 10:45 p. m. for the president's reception, refreshments, dancing and cards.

Attendance 500.

Meeting of January 15, 1929

The meeting was called to order at 8:35 p. m. by the president, Dr. Cleveland H. Shutt.

The meeting was turned over to the St. Louis Surgical Society for the annual Hodgen Lecture, Dr. William H. Vogt presiding.

Dr. Clopton introduced the speaker, Dr. Barney

Brooks, of Nashville, who delivered an address on "Surgical Applications of Therapeutic Venous Obstruction."

A letter from George A. Bronson, D.D.S., enclosing check for \$1,000 toward a fund for defraying the expense of a full time secretary was read.

Dr. Simon moved that the president appoint a committee to express to Dr. Bronson the appreciation of the Society for his offer. Seconded by Dr. O. R. Sevin and carried.

Attendance 212.

HERBERT S. LANGSDORF, M.D., Secretary.

Meeting of the Council, December 12, 1928

The meeting was called to order by the president, Dr. Charles Hugh Neilson.

The resignations of Drs. Rogers Deakin and William H. Thaler from active membership were read and on motion accepted.

The following were elected to membership: Active, Oliver Abel, Jr., 3701 Westminster Place; Helen F. Gibson, 519 Rosedale Avenue. Junior, Willard Bartlett, Jr., 410 Metropolitan Building; William G. Hamm, Barnes Hospital; David I. Katsuki, Deaconess Hospital; Guy N. Magness, 919 N. Taylor Avenue; Justin E. McCarthy, City Hospital; James A. O'Dowd, 31 N. Newstead Avenue; Charles F. Rosenberger, 2826A N. Vandeventer Place. By transfer, Noble D. McCormack, 4522 Westminster Place, from Sebastian County (Arkansas) Medical Society.

The report of the treasurer, Dr. Carroll Smith, for 1928, was read, accepted and ordered published in the Bulletin.

The annual report of the advisory committee of the Missouri Compensation Commission was read by the secretary and on motion adopted.

A letter from the General Printing Company was read requesting permission to accept advertisements from X-ray specialists. It was moved by Dr. Schlueter, seconded by Dr. Green, and carried, that the advertisements of roentgenologists be accepted for the Bulletin.

The question of waiving dues of members away from the city temporarily was brought up and it was the sense of the Council that since the By-Laws make no provision for this they be rigidly adhered to.

The offer to the Society of a memorial to the late Dr. Paul Y. Tupper was presented by the secretary, and on motion of Dr. Schlueter, seconded by Dr. Ravold, the matter was referred to the house committee.

Councilors present: Drs. Funsch, Green, Hardesty, Krebs, Mayes, Neilson, Ravold, Schlueter, Unterberg, Kieffer. Councilors excused: Drs. Gradwohl, Bailey, Reder, Vosburgh.

Visitors present: Drs. Elliott Dixon, I. H. Boemer, Claude D. Pickrell, Carroll Smith, Herbert S. Langsdorf, and Cleveland H. Shutt.

ROLAND S. KIEFFER, M.D., Secretary.

WOMEN'S AUXILIARY

OFFICERS 1928-1929

President, Mrs. Willard Bartlett, St. Louis.

President-Elect, Mrs. M. P. Ravenel, Columbia.

1st Vice President, Mrs. Harry F. Parker, Warrensburg.

2nd Vice President, Mrs. T. O. Klingner, Springfield.

3rd Vice President, Mrs. M. A. Hanna, Kansas City.

4th Vice President, Mrs. James F. Owens, St. Joseph.

Corresponding Secretary, Mrs. Theodore Prewitt Brookes, St. Louis.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. W. H. Goodson, Liberty.

Auditor, Mrs. Vilray P. Blair, St. Louis.

Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Henchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

ORGANIZED COUNTIES AND PRESIDENTS OF WOMEN'S AUXILIARIES

COUNTY	PRESIDENT	ADDRESS
Atchison.....	Mrs. E. P. Taylor.....	Fairfax
Audrain.....	Mrs. H. C. Brashear.....	Mexico
Bates.....	Mrs. E. N. Chastain.....	Butler
Boone.....	Mrs. M. P. Ravenel.....	Columbia
Buchanan.....	Mrs. F. H. Spencer.....	St. Joseph
Butler.....	Mrs. L. B. Knecht.....	Poplar Bluff
Caldwell.....	Mrs. Emma A. B. Thompson	Breckenridge
Cape Girardeau.....	Mrs. W. W. Ford.....	Gordonville
Cass.....	Mrs. J. S. Triplett.....	Harrisonville
Clay.....	Mrs. J. J. Gaines.....	Excelsior Springs
Clinton.....	Mrs. C. H. Risley.....	Cameron
Cole.....	Mrs. S. P. Howard.....	Jefferson City
Daviess.....	Mrs. L. R. Doolin.....	Gallatin
Dent.....	Mrs. A. T. McMurtry.....	Salem
Gentry.....	Mrs. J. N. Barger.....	Alhany
Greene.....	Mrs. Paul F. Cole.....	Springfield
Grundy.....	Mrs. J. E. Neely.....	Trenton
Henry.....	Mrs. J. J. Russell.....	Deepwater
Holt.....	Mrs. F. E. Hogan.....	Mound City
Iron.....	Mrs. R. W. Gay.....	Ironton
Jackson.....	Mrs. A. L. Skoog.....	Kansas City
Jasper.....	Mrs. C. C. Cummings.....	Joplin
Johnson.....	Mrs. H. F. Parker.....	Warrensburg
Knox.....	Mrs. W. F. O'Connor.....	Edina
Laclede.....	Mrs. J. C. Scott.....	Lebanon
Lafayette.....	Mrs. J. D. Guyot.....	Higginsville
New Madrid.....	Mrs. P. M. Mayfield.....	Portageville
Nodaway.....	Mrs. H. S. Maxwell.....	Hopkins
Phelps.....	Mrs. A. S. McFarland.....	Rolla
Pike.....	Mrs. T. G. Hetherlin.....	Louisiana
Platte.....	Mrs. H. M. Clark.....	Platte City
Randolph.....	Mrs. T. S. Fleming.....	Moberly
St. Francois.....	Mrs. G. L. Watkins.....	Farmington
St. Louis City.....	Mrs. Raymond M. Spivy.....	St. Louis
St. Louis.....	Mrs. W. F. O'Malley.....	Webster Groves
Saline.....	Mrs. F. A. Howard.....	Slater
Scotland.....	Mrs. P. M. Baker.....	Memphis
Vernon-Cedar.....	Mrs. T. B. Todd.....	Nevada

FIFTH ANNUAL MEETING WOMEN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

Springfield, May 14, 15, 16, 1929

PRELIMINARY PROGRAM

Tuesday, May 14, 1929, 9:30 a. m.: Meeting of special committees on Nominations, Resolutions and Finance.

Tuesday, May 14, 1929, 12:00 to 4:30 p. m.: Business meeting of Executive Board.

Tuesday, May 14, 1929, 6:30 p. m.: Informal subscription dinner to which all Auxiliary women are invited.

Tuesday, May 14, 1929, 7:30 p. m.: Theater party for visiting women. (Complimentary.)

Wednesday, May 15, 1929, 9:30 a. m.: Report of Officers. Reports of Chairmen of Standing Committees. Report of Credential Committee. Report of Finance Committee. Report of Nominating Committee. Election of Officers. Report of Committee on Resolutions.

Wednesday, May 15, 1929, 12:45 p. m.: Open luncheon, \$1.00 per plate. Introduction of National

President-Elect, and State President-Elect. Reports from presidents of county and city auxiliaries. Round table discussion.

Wednesday, May 15, 1929, 4:30 p. m.: Meeting of Executive Board, Mrs. M. P. Ravenel, Columbia, presiding.

Wednesday, May 15, 1929, 8:00 p. m.: Open meeting of Missouri State Medical Association.

Thursday, May 16, 1929, 10:00 a. m. Open Forum. This form of meeting is chosen for the purpose of giving those present an opportunity to discuss informally questions and answers on any subjects relating to Auxiliary problems. Remainder of the day open for social activities.

HENRY COUNTY AUXILIARY

The Women's Auxiliary to the Henry County Medical Society met at the home of Mrs. J. R. Hampton, Clinton, January 23, 1929. Those present were: Mrs. R. D. Haire, Mrs. J. R. Hampton, Mrs. S. A. Poague, Mrs. J. Q. Strickland, Mrs. G. S. Walker, and Mrs. S. W. Woltzen, of Clinton; Mrs. J. J. Russell, Deepwater.

The following officers were elected for 1929: President, Mrs. J. J. Russell, Deepwater; vice president, Mrs. S. W. Woltzen, Clinton; secretary-treasurer, Mrs. S. A. Poague, Clinton.

The secretary was instructed to subscribe for two copies of Hygeia for one year to be placed in the Clinton Public Library.

This was a splendid meeting. After adjournment delicious refreshments were served by the hostess.

The next meeting of the Auxiliary will be held at the home of Mrs. R. D. Haire, Clinton.

MRS. S. W. WOLTZEN, Acting Secretary.

Mrs. Walter J. Hansen, St. Joseph, Buchanan County, was awarded the fur neck piece given to the Auxiliary member who secured the largest number of subscriptions for Hygeia from September 1, 1928, to January 10, 1929. Her number was 119. Mrs. J. S. Triplett, Harrisonville, Cass County, was second, having secured 113 subscriptions. The fur neck piece was donated by the Leppert-Roos Fur Company, St. Louis.

TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

MULFORD ACIDOPHILUS BACILLUS BLOCKS.—A culture of *B. acidophilus* (Y strain), embedded in a 2 per cent. agar jelly containing milk powder, lactose, d-glucose and sucrose, and marketed in the form of chocolate covered cubes, each of which contains approximately 150 billion viable organisms (*B. acidophilus*) at the time of issue. For a discussion of the actions and uses of bacillus acidophilus, see Lactic Acid Producing Organisms and Preparations, New and Nonofficial Remedies, 1928 p. 228. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., November 3, 1928, p. 1375.)

PHENETIOTHALEIN SODIUM.—Phenoltetraiodophthalein Sodium.—Phenetiothalein sodium contains from 56 to 59 per cent. of iodine. It is used for the roentgenologic examination of the gallbladder and simultaneous test of hepatic function. Following the intravenous injection, the solution appears in the normal gallbladder in sufficient concentration to cast a shadow to the roentgen rays and if the liver is damaged it is retained in the blood in amounts indicative of the extent of impairment.

ISO-IODEIKON.—A brand of phentetiothalein—N.N.R. It is marketed in 2.5 Gm. ampoules. Mallinckrodt Chemical Works, St. Louis. (Jour. A. M. A., November 17, 1928, p. 1549.)

ETHYLHYDROCUPREINE.—This is a synthetic derivative of cupreine and is closely related to quinine. It has the anti-malarial and anesthetic action of quinine. Toxic symptoms, however, are more liable to occur than with quinine. Clinical investigation indicates that the drug may be of value in the treatment of lobar pneumonia, if a sufficient amount can be administered sufficiently early without untoward effect. To avoid such effect, it is proposed to secure slow absorption through the administration of the free base by mouth. The drug has a definite value in the treatment of pneumococcic infections of the eye.

OPTOCHIN BASE.—Optochin.—Ethylhydrocupreine.—For a discussion of the actions and uses see ethylhydrocupreine. Optochin Base is supplied in powder and in two grain tablets. Merck & Co., Inc., Rahway, N. J.

OPTOCHIN HYDROCHLORIDE.—The hydrochloride of ethylhydrocupreine. For a discussion of the actions and uses see ethylhydrocupreine. For application to the eye and instillation into the conjunctival sac, a freshly prepared 1 or 2 per cent. solution is used. It is not recommended for oral administration. Merck & Co., Inc., Rahway, N. J.

TABLETS PROTARGENTUM.—Squibb, 4.6 grains.—Each tablet contains 4.6 grains of protargentum—Squibb (New and Nonofficial Remedies, 1928, p. 397). E. R. Squibb & Sons, New York.

TABLETS SOLARGENTUM.—Squibb, 4.6 grains.—Each tablet contains 4.6 grains of solargentum—Squibb (New and Nonofficial Remedies, 1928, p. 398). E. R. Squibb & Sons, New York.

CAPSULES EPHEDRINE HYDROCHLORIDE.—Abbott, $\frac{3}{8}$ grain.—Each capsule contains $\frac{3}{8}$ grain of ephedrine hydrochloride—Abbott (New and Nonofficial Remedies, 1928, p. 176). Abbott Laboratories, North Chicago, Ill.

ANTIMENINGOCOCCUS SERUM, Concentrated.—Lilly.—An antimeningococcus serum (New and Nonofficial Remedies, 1928, p. 359) refined and concentrated by the Banzhaf method. It is marketed in packages of one 1 cc. double ended vial with apparatus for intraspinal injection. Eli Lilly & Co., Indianapolis.

ANTISTREPTOCOCCUS SERUM, Purified and Concentrated (Lilly).—A polyvalent antistreptococcus serum (New and Nonofficial Remedies, 1928, p. 361) prepared by immunizing horses against virulent strains of the various streptococcus groups. It is marketed in packages of one 10 cc. syringe and in packages of one 10 cc. vial. Eli Lilly & Co., Indianapolis.

CAPSULES EPHEDRINE SULPHATE.—P. D. & Co.—Each capsule contains 0.025 Gm. of ephedrine sulphate—P. D. & Co. (New and Nonofficial Remedies, 1928, p. 178). Parke, Davis & Co., Detroit. (Jour. A. M. A., November 24, 1928, p. 1633.)

PROPAGANDA FOR REFORM

LENDING AID AND COMFORT TO QUACKERY.—The federal officials whose business it is to prosecute the exploiters of medical fakes and frauds have for years complained that the government is much hampered in its legal assaults on quackery by the fact that physicians of standing will sell their expert testi-

mony to the nostrum exploiters. Regardless of the nature of the evidence or opinion, the appearance of a reputable physician on the side of the quack may lead a jury to believe that the nostrums under consideration are worth while and that the claims made for them are true. Recently hearings have been held before the Federal Trade Commission in the matter of a quack "obesity cure" known as Marmola." It is sold by one Edward D. Hayes, who at the present time does business under the trade name "Raladam Co." He has repeatedly been prosecuted for the exploitation of quack nostrums. Marmola, according to the exploiters, has essentially the following composition: Desiccated thyroid $\frac{1}{2}$ grain, extract of bladderwrack (*fucus vesiculosus*) 1 grain, extract of *Phytolacca* $\frac{1}{2}$ grain, extract of *Cascara sagrada* $\frac{1}{4}$ grain, phenolphthalein $\frac{1}{4}$ grain. For the government Dr. Charles A. Elliott, Solomon Strouse and Rollin T. Woodyatt testified as to the effects of the indiscriminate use of thyroid substance by the public. Not one of these three men charged the government a cent—they donated both their time and special knowledge. At a subsequent hearing Edward D. Hayes had expert witnesses to testify that Marmola was a scientific preparation and that it was harmless when used according to direction. The men that testified to this effect were: Robert W. Keeton, Alonzo C. Tenney, Frank L. Stone, George W. Funck, Harold S. Hulbert, Samuel F. Haverstock. Each of these men is a member of his local medical society and, through that, has qualified as a Fellow of the American Medical Association. Here, then, is a sweet spectacle: the American Medical Association attempting to protect the public against quack remedies, while individual members lend aid and comfort to the exploiters of quack remedies. (Jour. A. M. A., November 3, 1928, p. 1377.)

PERTUSSIS BACILLUS VACCINE.—Vaccine made from stock cultures has been used with a great variety of success. Certainly as used it does not prevent all cases, nor does it cure a great percentage of those who have contracted the disease. Its use is not harmful so far as we know and the reactions are slight, if any. For this reason it may seem desirable at times to use them even though results may not be encouraging. (Jour. A. M. A., November 3, 1928, p. 1394.)

MORE MISBRANDED NOSTRUMS.—The following products have been the subject of prosecution by the Food, Drug and Insecticide Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Jecorrol (Glogau & Company) representing antirachitic potency not greater than would be found in one-tenth the volume of prime Lofoten cod liver oil. Glandogen (Morex) (The Glandogen Company) consisting essentially of extracts of animal matter and plant extracts, including strychnine. Pas-Shon-Rub and Pro-Long-Rub (Doctor's Laboratories) the first consisting essentially of a mixture of glycerin, protein and fatty material and the second a pink ointment composed chiefly of wool-fat with a small amount of formaldehyde and nitrogenous material. Double O Medicine (The Red Star Laboratories Company) a solution in alcohol and water of resins, such as those from buchu and copaiba, vegetable extractives, volatile oils and sugar. Hy'ne (The Hy'ne Company) consisting of suppositories of cacao butter containing boric acid, salicylic acid, ammonia alum, thymol and quinine. Borine (The Borine Manufacturing Company) containing essential oils, boric acid, formaldehyde, glycerine, alcohol and water. Fosfarsinol (American Tropical Remedy Company) consisting essentially of an arsenic com-

pound, sodium, potassium and calcium glycerophosphates, a salt of strychnine and sugar, all dissolved in alcohol and water. Grant's Hygienic Crackers (The Hygienic Health Food Company, Inc.) consisting essentially of wheat bran flour, salt and yeast. Musser's Red Capsules (The Musser-Reese Chemical Company) containing compounds of arsenic, iron and calcium, with strychnine and an extract from a laxative plant drug. Lifo Herb Medicine (The Lifo Medicine Company) a water-alcohol solution of bitter and laxative plant drug extracts and salicylic acid. (Jour. A. M. A., November 10, 1928, p. 1480.)

MME. PERRY, DERMATOLOGIST.—From Lynn, Massachusetts, Mrs. Sadie L. Perry, sixty years old, carries on a fraudulent business under various trade names—"Mme. Perry, Dermatologist," "Mme. Perry, Miracle Woman of the World," etc. Mrs. Perry was engaged in selling, through the United States mails, a recipe of a medicinal preparation, and also the preparation itself, under the claim that, when used, the product would grow hair on bald heads, stop falling hair, cure dandruff, restore gray and faded hair to its former color and make the eyebrows grow! A fraud order has been issued which denies the use of the mails to Mme. Perry. (Jour. A. M. A., December 15, 1928, p. 1912.)

IODIDE AND HEALTH.—The extensive use of iodine in the prophylaxis of goiter has focused attention on the possible physiologic consequences of prolonged administration of this element. Hanzlik and his co-workers have made observations on rats. To an otherwise adequate ration, sodium iodide was added in amounts that corresponded to 3.3 mg. daily per kilogram throughout the major part of the life of the rats. This dosage would correspond to about 0.23 gm. daily for an adult of 70 kg. It was found that the continued administration of iodide in small daily doses in foods over long periods caused moderate though variable increases in weight and growth of the body in the majority of animals. The same tendency was indicated in rats on a deficiency diet. In contrast to the results obtained with iodide were those with sulphocyanate, bromide, arsenic, thallium and manganese. From these experiments there is no reason to believe that the prolonged use of iodide in small doses under ordinary conditions is detrimental. Hanzlik warns, however, that this would not apply to the continued use of iodide in specific conditions of the thyroid, or to large doses of the drug. (Jour. A. M. A., December 1, 1928, p. 1720.)

HEALTH APPEAL.—The advertising writers of our progressive land have found the word "IT" in their profession means "Health Appeal." A cursory inspection of current periodicals indicates no lessening of the attention to the health angle. The folly of the all-or-nothing policy in foods, the ridiculousness of some of the arguments as to vitamin content, the preposterous claims for glorified antiseptics, the cautious venturings of time-tried tonics into the public field, and the dazzling claims of the promoters of light arouse the risibilities of the physician by their startling inconsistencies if not by their exaggerations. Who would have thought ten years ago that cigarettes would be sold to the American public by insistence on the healthful qualities of certain brands? The manufacturers of Lucky Strike cigarettes are promulgating a campaign in which they assert that these cigarettes do not cut the wind or impair the physical condition, and that "Lucky Strike satisfies the longing for things that make you fat without interfering with a normal appetite for healthful foods." The human appetite is a delicate

mechanism and the attempt to urge that it be aborted or destroyed by the regular use of tobacco is essentially vicious. (Jour. A. M. A., December 8, 1928, p. 1806.)

DEATHS FROM CONTAMINATED TOXIN-ANTITOXIN.—At Bundaburg, Australia, last January, twelve of twenty-one children inoculated with diphtheria toxin-antitoxin at one time died within the next few days. An extensive investigation was made into the causes of the fatalities. The mixture used was issued in rubber-capped bottles, but without the addition of an antiseptic, in order to avoid possible risk from freezing. Each bottle was to be used at one time, but this was not done at first, and fluid was withdrawn from one bottle several times in the course of a week. The investigation brought out that the symptoms and the postmortem and bacteriologic observations were all suggestive of an overwhelming infection with staphylococci. Evidently the vial was contaminated during the previous injections, and in the absence of an antiseptic the organisms multiplied in the fluid. (Jour. A. M. A., November 17, 1928, p. 1553.)

PASCARNATA—Merrell.—According to the catalogue of the Wm. S. Merrell Co., Pascarnata is prepared from fresh *Passiflora incarnata* (passion flower) and represents the medicinal virtues of the whole plant, but no statement of the amount of passion flower contained in a given quantity of this proprietary is given. Pascarnata has not been accepted for New and Nonofficial Remedies nor is any passion flower preparation included in the book. The following are some of the claims advanced for Pascarnata: "It serves as an ideal soporific [soporific], without narcotic action, and is one of the most desirable antispasmodic and antineuralgics available." "In nervous or sick headache, sleeplessness of typhoid and other fevers, cerebral excitement, overworked mental faculties, brainfag and the overstimulation due to worry and hysteria, Pascarnata will be found highly effective." "It is useful as a palliative in spasmodic bronchial asthma and whooping cough, and also in the hysteria due to dysmenorrhea." The following is the estimate of passion flower that is contained in the Epitome of the U. S. Pharmacopeia and National Formulary issued by the Council on Pharmacy and Chemistry: "Exploited by manufacturers of proprietary medicines for the treatment of insomnia, but probably inert." At one time passion flower was a constituent of many so-called female remedies and uterine tonics, but the drug was found to be without effect on the excised guinea-pig uterus. (Jour. A. M. A., December 15, 1928, p. 1914.)

THE HAZEN A. HORTON FRAUD.—Hazen A. Horton of Marshall, Michigan, has been quacking it for many years, using the United States mails as the intermediary for his operations. The Solicitor for the Post Office Department found that the representations made by Horton, to the effect that, when used as directed, Kori and Nervo will cure kidney, bladder, prostate and nervous disorders, that they will purify and enrich the blood and restore lost health, strength and vitality, and that the New Day Improved Appliance, by exercising an elastic pressure on the spermatic cord, will cause the testes to receive an increased blood supply, get better nourishment and produce a greater quantity of hormones, thereby restoring lost manhood and rejuvenating the body in general "without an operation" were false and fraudulent. The mails were closed to Hazen A. Horton. (Jour. A. M. A., December 8, 1928, p. 1824.)

BOOK REVIEWS

THE PRINCIPLES AND PRACTICE OF MEDICINE. Designed for the use of Practitioners and Students of Medicine. Originally written by the late Sir William Osler, Bt., M.D., F.R.S. Formerly Fellow of the Royal College of Physicians, London, etc. Tenth edition thoroughly revised by Thomas McCrae, M.D., Fellow of the Royal College of Physicians, London, etc. New York and London: D. Appleton & Company. 1927. Price \$7.50.

In the preface it is stated that those who have read the biography of Osler by Harvey Cushing have already noted the large part which this textbook occupied in his life. Those of us who have been in medicine for the last thirty-five years know how important a part it has played in our lives. To those who are to come after us it promises to play just as important a part.
R. L. T.

LEAD POISONING. (Medicine Monographs. Volume VII.) By Joseph C. Aub, et al. Baltimore: The Williams & Wilkins Company. 1926. Price \$4.00.

There are certain so-called industrial diseases that are frequently met with in general practice. Owing to the widespread sources of lead, not only in industry but from divers outside sources, lead poisoning should be of interest to every practitioner. This book is a thorough, comprehensive, and at the same time concise treatise on this subject. Every phase, from the history, detection, absorption, distribution, excretion, pathology, physiology, to the clinical picture and treatment of this condition is considered in this volume.

At the end is a summary of the present industrial situation, contributed by Dr. Alice Hamilton.
R. L. T.

THE CLINICAL EXAMINATION OF THE NERVOUS SYSTEM. By G. H. Monrad-Krohn, M.D., F.R.C.P., Profession of Medicine in the Royal Frederick University, Oslo, etc. With a foreword by T. Grainger Stewart, M.D., F.R.C.P., Physician to the National Hospital for the Paralyzed and Epileptic, Queen Square, etc. Fourth edition. New York: Paul B. Hoeber, Inc. 1928. Price \$2.50.

This small volume very ably lives up to its purposes as stated in the foreword, namely, to provide an outline for beginners and practitioners in the making of neuropsychiatric examinations. The subject matter is presented in clear and concise form with sufficient description of the purpose of the various procedures and explanation of their applications to the function being tested. I know of no other work which so briefly and yet completely covers this field.
F. M. B.

THE KAHN TEST. A Practical Guide. By R. L. Kahn, M.S., Sc.D. Baltimore: The Williams & Wilkins Company. 1928. Price \$4.00.

The growing interest in the Kahn Test is a good indication of the value of the method, since no method could possibly have replaced the

Wassermann test unless it was superior to that test. There are few laboratories the world over where the Kahn test is not employed either with or without the Wassermann test and those who have taken the trouble to employ the Kahn test correctly have usually found that they could well dispense with the older method.

This new volume by Kahn, although essentially a guide for laboratory workers, contains much material of interest to physicians. As Kahn points out in the preface "The intelligent clinical interpretation by physicians of a laboratory method is impossible unless they have some general idea of the method; otherwise they are interpreting a name and not a method."

The first chapter summarizes Kahn's fundamental studies on the precipitation phenomenon in syphilis. This will be of interest not only to those who desire a complete understanding of the governing principles of the Kahn test but also to those who are concerned with the phenomenon of precipitation as a research problem. The chapter is unique insofar that the principles governing precipitation in syphilis are correlated with those governing precipitation in colloidal systems of a nonbiological character.

The remaining eight chapters are devoted to technical aspects of the Kahn test. Much space is given to the standardization of antigen to assure uniform results in the hands of different workers. Antigen standardization, one of the weaknesses of the Wassermann test, places the Kahn test on a quantitative basis. Considerable space is also given to the presumptive procedure which is more sensitive than the regular Kahn test and to the spinal fluid and micro procedures. A summary of the clinical interpretation of each method follows the technical discussion.

No laboratory worker can afford to be without this volume. The same also applies to physicians who are interested in the latest information on the diagnosis of syphilis.
N. N.

CERTIFIED MILK CONFERENCES HELD IN 1928.

This volume contains the proceedings of the annual conferences held in 1928 of the following organizations: American Association of Medical Milk Commissions, Certified Milk Producers' Association of America, Metropolitan Certified Milk Producers. It also contains the Constitution and By-Laws of the American Association of Medical Milk Commissions and Metropolitan Certified Milk Producers, together with the methods and standards for the production of certified milk.

This book is a valuable contribution to methods of promoting certified milk there being reports from milk commissions in all parts of the country.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume 8, number 5. (New York Number—October, 1928) 293 pages with 141 illustrations. Per Clinic year (February, 1928 to December, 1928). Paper \$12.00; Cloth \$16.00. Philadelphia and London: W. B. Saunders Company.

This volume is dedicated to New York City where the clinics were held. There are nineteen contributors with most of the clinics held at the Fifth Avenue Hospital.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

APRIL, 1929

NUMBER 4

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1023 Missouri Building, St. Louis, Mo.

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ORIGINAL ARTICLES

DIABETIC DOCTORS*¹

ELLIOTT P. JOSLIN, M.D.

BOSTON, MASS.

Young Doctors—Diabetic Discoverers.—Paracelsus was born only two years before Columbus discovered America, and as he died in 1541 he must have been young when he evaporated the urine to a syrupy consistency and noted that a measure yielded four ounces of salt. Thomas Willis came into this world a year after the Pilgrims landed at Plymouth, and in the course of his 54 years lived the life of a scholarly, generous, gentleman, described the circle in the brain which bears his name and among other achievements observed that the urine of a patient tasted wonderfully sweet as if imbued with honey or sugar. Just a century elapsed after his death, in fact it was the very year that Paul Revere rode into Lexington and legendary lore in New England, that Matthew Dobson rode into diabetic fame in Old England by his proof through fermentation of the urine of a diabetic that its sweetness was actually due to sugar, and by taste that there was also sweetness in the blood.

Claude Bernard (1813-1878) was 36 when he made the fortunate puncture which brought so much joy to physiologists and began the unraveling of the mysteries of glycogen. Langerhans in 1869 was only 22 when he wrote his thesis for his doctor's degree and discovered the islands which have made him immortal. Minkowski was about 31 a score of years later when he removed all doubt about the association of the pancreas with diabetes by demonstrating the invariable sequence of the disease in a dog when the gland is removed. Opie was an assistant 28 years old in 1901 when he showed that Langerhans' islands and not the whole pancreas were of significance in diabetes.

Allen was 35 in 1914 when he utilized the value of undernutrition in treatment and pointed out the dependence of the diabetic upon total calories as well as upon the carbohydrate of the diet. For the present the story ends with the year 1921 when two young men, Banting, 28, and Best, 22 years of age, made death from diabetes needless by the discovery of insulin.

Thus for nearly four centuries the glamour of youth has surrounded the diabetic. It has been the young, not the old physician, who has had the inspiration and achieved progress. Desire to discover has been as keen, perhaps keener in the minds of the old doctors, but it is youth "who beholds the light and whence it flows" and captures the prize.

Turn about is fair play. If young doctors help diabetics, diabetics should aid young doctors. Diabetics should build dormitories for young doctors, create for them assistantships in clinics and laboratories and stimulate them to live and work while their minds are nascent, should furnish means for their investigations, and by taking personal interest in their work supply encouragement and inspiration. The returns will come and most unexpectedly. For each dollar the Metropolitan Life Insurance Company pays for its propaganda of health, it saves two dollars for its assets. Should you not think that every diabetic who had resources would want to keep a young doctor at work upon his disease? "A community has the health for which it is willing to pay."

My Diabetic Doctors.—One hundred and seventy-one doctors have consulted me for diabetes² and 131 of these have had the true disease. One doctor proved to be a renal glycosuric; 11 are as yet only potential diabetics, and 28 unclassified, nondescript glycosurics.

The hereditary factor among 128 (in 3 unknown) of these physicians has been prominent, indeed the most frequent among any group of diabetics I have yet studied save that of the 16 diabetic children of 10 years' duration in whom it occurred in 44 per cent, and

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

1. From the New England Deaconess Hospital, Boston.

2. Compiled, 1928.

Table 1. *Diabetic Doctors 1-6000*

	True Diabetics	Unclassified Cases	Potential Diabetics	Renal Glycosurics
Number of Cases	131	28	11	1
Males	126	27	10	1
Age of Onset, Yrs.	47.6 ¹	43.3	35.9	34.8
Heredity, Total	36	9	3	1
Hereditary	25 ²	7	3	1
Familial	19 ²	3	1	0
Hereditary and Familial	8	1	1	0
Overweight	72 ³	15	4	0
Underweight	5 ³	0	0	0
Duration, Yrs.				
No. of Cases, Living	21	10	4	1
Traced to July, 1926	Duration 8.8 yrs.	6.7 yrs.	5.0 yrs.	12.5 yrs.
No. of Cases, Living	57	16	7	
Traced to July, 1927	Duration 9.1 yrs.	8.6 yrs.	8.3 yrs.	
No. of Cases, Fatal	50	1	0	
Untraced	Duration 9.3 yrs.	8.1 yrs.	0	
	3	1		

1. 130 Cases.

2. 128 Cases.

3. 103 Cases.

of the 200 living diabetic children in whom it was present in 31.5 per cent. The doctors show a total heredity of 28 per cent including 25 cases of direct heredity and 19 cases of the familial type with 8 instances in whom both types were present. One cannot expect to secure a history of diabetic heredity in a much greater per cent than this unless it develops among the descendants of our diabetic children.

The fat doctor is the diabetic doctor. Seventy-two among the 103 for whom the necessary data are available were overweight, 26 of normal weight, and only 5 underweight.

Verbum sap.—Diabetes in the doctor begins at an earlier age than is the rule for diabetics as a group, and this holds despite the absence of children in the series. The onset of diabetes in my series is most frequent at 50 in women and 51 years of age in men, but in doctors the average age at onset is 47.6 years. Does this not mean that it has been discovered early? At onset of symptoms the one renal glycosuric was 34.8 years, the 11 potential diabetics averaged 35.9 years, and the 28 unclassified glycosurics were 43.8 years. As the average physician in this country dies at the age of 62 years, the average diabetic doctor must live 15 years after his diabetes develops or acknowledge himself conquered by his disease.

Through the courtesy of Dr. Morris Fishbein, editor of *The Journal of the American Medical Association*, I learned that *The Journal* published during the years 1926, 1927 and 1928, obituaries of 2677, 2790 and 2792 physicians classified as of the United States. Of these 50, 44, and 52, respectively, died of diabetes and these deaths occurred after 70 years of age in 42 per cent and 36 per cent, respectively, for these years. It would seem therefore that the diabetic doctor today is conquering his disease.

Causes of Death.—Fifty of my doctors are

dead. Twelve of them died of coma, 24 per cent; 24 of arteriosclerosis and its complications, 48 per cent; 3 of tuberculosis, 6 per cent; 3 of cancer, 6 per cent; 3 of pneumonia or influenza, 6 per cent, and the remainder of miscellaneous diseases. These 50 deaths are quite similar to most series of diabetic deaths over a long period of years. If the date were limited to recent deaths, I am sure coma would play a minor role.

Table 2. *Causes of Death*

True Diabetic Doctors	
Coma Present	12
Coma Absent	38
Cardiorenal	
Cardiac	12
Renal	3
Arteriosclerosis	1
Apoplexy	5
Infections	
Influenza	1
Gangrene, sepsis	3
Pneumonia	2
Tuberculosis	
Pulmonary	2
Miliary	1
Carcinoma	
Liver	1
Bladder	1
Hypernephroma	1
Miscellaneous	
Strangulated hernia	1
Gallstone operation	1
Diabetes	2
Unknown	1
"Unclassified" Doctor	
Coma Absent	
Sarcoma	1

The duration of life of the 50 dead diabetic doctors was 9.3 years and of the 57 living doctors to July, 1927, was 9.1 years. Regarding 21 of the latter my data extend only to July, 1926, and the average duration of their diabetes was 8.8 years. I have as yet only one other equally large group of diabetics who have lived as long as the doctors and that group is my diabetic Jews, but a decade hence diabetic children may have outstripped them both.

EPIDEMIC MENINGITIS

A. SOPHIAN, M.D.

KANSAS CITY, MO.

PART III

ABORTIVE EPIDEMIC MENINGITIS

The abortive form of meningitis has had but scant attention in the meningitis literature and for very good reasons. Positive diagnosis in epidemic meningitis can only be definitely made by finding the meningococcus in the cerebrospinal fluid. In most cases, one is inclined to postpone lumbar puncture until meningeal symptoms are distinctive. Thus, diagnosis is confirmed only in definite clinical cases that run the usual course. An abortive form of epidemic meningitis may be described as a form in which the disease is spontaneously checked before it becomes advanced and causes the usual severe symptoms. These cases undoubtedly exist in epidemic meningitis, just as they do in poliomyelitis. In a classification of an abortive form we must include only those forms that have been checked before the development of active meningeal symptoms. In meningitis, judging etiologically at least, this stage must be during the period, and only shortly after, the meningococcus septicemia has set in. Theoretically, there is every reason to believe that cases of meningococcus septicemia without subsequent severe involvement occur. Clinically, a case which I shall cite will, I believe, bear this out.

REPORT OF CASE

Case 1. Woman, aged thirty-five, had an acute onset with chill and moderate fever. She vomited several times and had a severe headache. In a few hours she began to complain of pain and discomfort in the back of the neck and spine. There was, however, no impairment of motion in her neck. About twelve hours after the onset she called her physician, who suspected epidemic meningitis and performed a lumbar puncture removing a few cubic centimeters of clear fluid under slightly increased pressure. No serum was injected. A few free Gram-negative cocci that failed to grow were reported as being found in the fluid. She was sent to the hospital about an hour after the puncture. Examination at this time showed a well nourished woman; general condition good; mentality clear; no irritability; slightly hypersensitive; pupils dilated. There was a little spasticity of the neck antero-posteriorly, but it could be moved after the first slight spasm. Macewen could not be determined; tenderness marked at the angle of the jaw; no Kernig; reflexes exaggerated; no tache; pulse and respiration normal; temperature normal. Nose culture yielded the meningococcus. She was discharged from the hospital 48 hours later, no further symptoms having developed.

Discussion.—This was undoubtedly an abortive case of epidemic meningitis. A study of this history will show that these cases may easily be overlooked as grippe during an epidemic.

Fulminating Type.—This is the most malignant form of meningitis. It runs a very acute course and kills the patient, frequently in from a few hours to a day. The picture of this disease is not so much that of meningitis, but rather of a violent general sepsis that utterly overwhelms the patient, causing complete collapse. Clinical observation and postmortems bear out the fact that it is the general sepsis that kills; the local meningitis process may be very mild. This group is made up, in greater part, of the petechial and the purpuric cases. The onset is very acute with chills and very rapid progression of symptoms, the patient looking and becoming very septic and rapidly going into collapse. The patient is frequently very cyanosed, the skin mottled, cold and covered by a very profuse petechial and purpuric eruption. Pulse is weak and very rapid; respiration rapid and labored. Meningitis symptoms may be very mild. In many of the petechial, fulminating cases that were sent to the hospital, lumbar puncture had to be postponed for a number of hours while the patients were being actively stimulated. I have noticed that if these septic, petechial, fulminating cases can be tidied over the first 24 to 36 hours they will respond and then run the course of the average case of epidemic meningitis. It would appear that, if the patient can survive the immediate shock of the overwhelming bacteremia, he may overcome the bacteremia in a very short time. This is analogous to the bacteremia seen in lateral sinus thrombosis, in which a blood culture will show plates overgrown with the streptococcus; and after the operation of opening and draining the sinus and possibly tying off the jugular, the bacteria in the blood will disappear almost immediately, so that a blood culture only one-half hour after the operation will yield only a few colonies or be entirely sterile.

REPORT OF CASE

Case 1. Boy, aged eighteen, laborer, strong and robust, had gone to work in the morning thinking he had grippe. He felt worse during the day but kept at his work. In the afternoon, about seven hours after the onset, he suddenly collapsed. Examination showed a cyanosed, intensely septic-looking patient in complete collapse. He vomited a few times. Pulse 180, very weak. Respirations 34 and regular. He had a very profuse petechial eruption all over the body;

a number of petechiae were in his lower eyelids, a few in the buccal mucosa. His neck was only slightly rigid. Kernig was slight. In spite of all treatment the patient grew rapidly worse and died in one hour.

Lumbar puncture gave a faintly turbid fluid, moderately increased in quantity and showed a few meningococci and pus cells.

Case 2. An old woman of sixty became ill at nine in the morning and died four hours later. She was intensely septic and in severe shock. She was covered with a profuse petechial and purpuric eruption. Had practically no meningitic symptoms. She acted throughout as if she were suffering from a severe general sepsis. Postmortem puncture gave almost a clear fluid in which were a few meningococci.

CHRONIC MENINGITIS

This stage of meningitis is simply a continuation of the acute stage and similarly has a group of symptoms due to sepsis, meningeal irritation, pressure symptoms and local paralysis. It is characterized principally by its slow, irregular, lingering course, the tendency to gradual but steady aggravation in the condition, extreme emaciation, and severe cerebral pressure symptoms. This form of meningitis was the classical type of the disease formerly described in textbooks. Since the advent of specific serum therapy it is relatively uncommon and occurs usually in untreated cases or in incompletely treated cases. It is a great relief to see this dreadful picture of meningitis becoming less and less frequent as we learn more about the clinical and pathological picture of meningitis and the methods of employing the specific serum in the disease.

Septic phenomena are very much less active in the chronic stage. The general experience with epidemic meningitis is that the septic phenomena either kill quickly or subside quickly. This is borne out by examinations of the cerebrospinal fluid, which show a few organisms and little change in cytology in the chronic condition. The symptoms of sepsis are thus mild and irregular.

Fever is extremely irregular in this condition. It may be entirely absent or subnormal. It may remain normal for days or weeks at a time, then suddenly rise very high and run an irregular intermitting curve for a few days, coming down to normal again. Other times there is an irregular curve, running daily between 101° and 103° for weeks. One case under my observation ran a tertian malarial fever curve up to 104° every third day, reaching normal in twelve hours. Malaria was ruled out by repeated examinations. Chills may occur irregularly.

Emaciation is the constant feature of this stage of the disease. It is curious to note that the general nutrition, as a rule, remains remarkably good during the acute stage. As the disease continues, however, evidences of the most profound nutritional disturbance develop. Patients will take large quantities of nourishment and apparently digest the food well, but appalling wasting continues steadily, reducing previously well-nourished bodies to skin and bones within a short period of days. This state, however, does not necessarily intimate a fatal issue. It is astonishing to see patients reduced to skeletons and who appear as a living death, linger for weeks at a time and ultimately recover. I shall never forget one patient, a girl of seven, whom I saw some years ago. She was in the advanced chronic stage of meningitis, suffering from severe hydrocephalus and pressure symptoms. She was almost completely unconscious and terribly emaciated. She continued in this condition for weeks. It was sometimes difficult to determine whether she was still living. After a time, the nurses and doctors in attendance prayed that she be released by death. This patient ultimately recovered.

It is difficult to explain this profound, nutritional disturbance except by some vital affection of the centers of the central nervous system. A similar tendency to emaciation is not infrequently seen in acute cases of meningitis during convalescence.

Hydrocephalus, caused by an excessive collection of only mildly infected fluids, is the principal pathological condition met in chronic meningitis. It causes a varying degree of pressure symptoms which have a tendency to become gradually worse. It may be divided in two groups: (1.) Usual form, where there is free communication between the ventricles and subarachnoid space through the basal foramina. (2.) Posterior basic meningitis, where there is shutting off of the communication between the ventricles and subarachnoid space with encapsulation of the fluid within the ventricles.

Symptoms of Chronic Meningitis With Usual Form of Hydrocephalus.—The symptoms of this condition are simply an aggravated picture of the pressure symptoms described under the acute form of meningitis. Rigidity of the neck and Kernig sign are very variable. They may be as marked or more marked than in the acute condition; but both may be very much relaxed for days

at a time, to recur irregularly, especially with recurrence of the fever.

Mentality is very much more obscured than in the acute condition. The patient is drowsy and stupid, sleeping most of the time. There are also periods of extreme restlessness, crying and delirium. The condition similar to typhoidal insanity, which has been described under the acute form, is very apt to occur here, the patient being irrational, childish and having many delusions. This may be accompanied by intervals of hours of perfect rationality. The "hydrocephalic cry" (*crie hydrocephalique*) a purposeless, high-pitched, anxious, wounded cry, which appears to be utterly automatic and independent of pain, is encountered in extreme hydrocephalus. Complete coma occurs in the final stages.

Convulsions are quite common, occurring occasionally as general clonic convulsions or persisting as tonic spasms of some or all of the extremities, interrupted at times by clonic spasms. Twitchings are observed irregularly all over the body. Vasomotor phenomena are frequent. There is flushing of the face and body with irregular perspiration. Trophic disturbances are common; extensive, deep, sloughing bedsores occur. Respiration is usually slow, irregular, deep sighing with long periods of intermission. It conforms at first to the undulatory type described by Connor, later Biot's breathing occurs. Pulse is most often very rapid, weak, intermitting, or may be irregularly rapid. At other times, it is very slow, full, of high tension, irregular and intermitting.

Vomiting occurs several times daily, as a rule. It is explosive and sudden, the so-called "projectile vomiting" of large quantities of food that is usually well digested. Immediately after the vomiting spell the patient will be able to eat a large meal. Bowels are usually very constipated.

Macewen's sign or bulging fontanel is very pronounced. In young children with open sutures the head becomes distinctly enlarged. The veins over the scalp, especially over the temporal region, become very much distended. In young children there is a wide separation of the sutures. Eyes are wide open, expressionless. Sometimes patients are actually blind; other times they see, but it is difficult to determine whether vision is present. Pupils are widely dilated, often irregular, and respond very sluggishly or fail to respond to light. Lateral nystagmus is very common. Strabismus is usually present, most often divergent.

Reflexes, superficial and deep, are absent

or very sluggish. Babinski is frequently obtained. Involuntary passage of urine and stool is the rule. Urine is usually scanty. Swallowing may be very difficult, so that food may have to be given altogether by gavage. Palsies and all the other complications to be described under "Complications" are very common in this stage.

General Appearance of the Patient in Advanced Condition.—The patient usually lies on his side, head retracted. Most of the larger joints are flexed, the forearm on the arm, the legs on the thighs, the thighs on the abdomen. He shows a varying degree of emaciation. The face is pinched and anxious and frequently has a characteristic appearance. It is expressionless, fixed, immobile, and at times is disturbed by the automatic hydrocephalic cry. The abdomen is very retracted and "boat shaped." The flexed joints become stiff, frequently swollen, and contractures occur. The color is either a ghastly pallor or cyanotic. The skin is mottled and cold. Bedsores are common. The tongue is dry, tremulous. The lips and gums are covered with sores. The patient lies in the same position for hours. He looks like a living death. At times, it may be difficult to determine whether the patient is alive. He does not appear to hear or see. The condition may suddenly change and the patient may become brighter and appear to hear and try to answer questions as well as take his nourishment.

POSTERIOR BASIC MENINGITIS

Gee and Barlow, in 1878, first described this form of meningitis in young children, calling particular attention to the marked retraction of the head that occurs in these cases. The etiology, at that time, was not known. They considered syphilis as a possible factor but believed that there was probably some relationship to epidemic meningitis.

Still described a number of cases in 1898. He found a Gram-negative coccus that resembled the meningococcus but different from it, he believed, in some minute details. He attempted further to draw the distinction between these cases and epidemic meningitis by stating that these cases occurred sporadically but not in epidemics. Houston and Rankin, Taylor, and others believed that this organism differed from the meningococcus isolated in epidemics, as proved by agglutination and opsonic tests with the serum of meningitis patients.

In reference to the difference found by

various workers between the organism present in this condition and in epidemic meningitis, one need only refer to the later work on the meningococcus group or organisms, described in the preceding pages, to explain away these slight differences. We know that the meningococcus, like the gonococcus, is made up of a number of different strains, which give different serum reactions. They, however, are all meningococci. I have isolated these organisms both during the epidemics and in sporadic cases, and have found no cultural difference from the usual meningococcus. One strain that I tested with complement-fixation gave equally as good fixation with the serum of an organism isolated from an epidemic case as with the autogenous serum.

These cases occur, like the usual epidemic meningitis, both sporadically and in epidemics. I have met them in epidemics like the usual epidemic meningitis. Furthermore, as my discussion later on will prove, any case of epidemic meningitis may, during its course, develop into a posterior basic case with closure of the basal foramina. The condition is simply one of the possible pathological lesions produced by the meningococcus, but is and should be considered epidemic meningitis and due to the same organism.

In this form of epidemic meningitis in which there has been a collection of plastic exudate at the base of the brain, the communication between the ventricles and the subarachnoid space is shut off. The subarachnoid space communicates with the general ventricular cavity of the brain by three openings; one of these is in the middle line at the inferior boundary of the fourth ventricle where an opening in the pia-matral covering of this cavity, the foramen of Magendie, exists and permits the passage of fluid from the one space to the other. The other two communications are in the extremities of the lateral recesses of the fourth ventricle behind the upper roots of the glossopharyngeal nerves. They are named the foramina of Key and Retzius. It is stated by Merkel that the lateral ventricles also communicate with the subarachnoid space at the apices of their descending horns.

The essential feature of this lesion is the encapsulation of the inflammatory process within the ventricles. This is the condition that causes the symptoms and ultimate death. The inflammatory process in the subarachnoid space usually promptly subsides so that one ordinarily is unable to ob-

tain any fluid from it by lumbar puncture. If a little fluid be withdrawn it is most frequently sterile.

Posterior basic meningitis may develop primarily at the onset of the disease; but in most cases it develops during the subacute or chronic stage of meningitis. It may develop very suddenly, apparently in a few hours, while a case is under observation, or it may appear more slowly with a gradual shutting off of the communication. I believe the latter is more commonly encountered.

The two principal forms of this condition are: (1.) Fluid in the ventricles is entirely sterile. (2.) Fluid in the ventricles is infected with meningococcus, most often only slightly infected, sometimes very purulent. (The fluid in the subarachnoid space is usually sterile, but may be infected.)

In all forms of this condition, however, the symptoms, like in Type 1 of chronic meningitis, are due chiefly to pressure except in the form with very purulent fluid in the ventricles. This condition, as mentioned, develops usually in the subacute or chronic stage of meningitis. It sometimes arises during the apparent convalescence from an acute attack of meningitis when one is congratulating one's self on the drop in temperature and the disappearance of organisms from the cerebrospinal fluid. It may be noticed, however, that the patient is very quiet, is somewhat stupid, and sleeps a good part of the time. The neck still remains stiff and retracted. Gradually the pressure symptoms become more marked.

Sometimes posterior basic meningitis develops acutely during the course of the usual case of epidemic meningitis. Things may be progressing fairly well. All symptoms of meningitis are present, but the symptoms are principally those of meningeal irritation and sepsis. Large quantities of purulent fluid may be obtained by lumbar puncture. It is suddenly noticed, possibly only a few hours after lumbar puncture, that the patient has become very stuporous, that all pressure signs are marked and that opisthotonos has become more pronounced. Lumbar puncture results, however, either in 1 or 2 cc. of fluid or a dry tap, showing that pressure signs are due to an encapsulated collection of fluid. More often, however, the closure is less abrupt. Pressure symptoms develop more slowly, and there is a gradual diminution in the quantity of fluid obtained by lumbar puncture before a dry tap ensues.

Symptoms in this condition simulate

those seen in a mildly infectious hydrocephalus case seen in Type 1 of chronic meningitis. Signs of sepsis are very much the same, being usually mild. Where the fluid in ventricles is very turbid the more acute symptoms of sepsis occurring in meningitis may be present. Emaciation is progressive and extreme.

Pressure signs are even more marked than in Type 1, in which there may apparently be an equal degree of hydrocephalus. Especial attention may be called to the following group of symptoms:

Opisthotonos with rigidity of the neck occurs in the most extreme form in this condition, so that it is not uncommon to see cases where the occiput touches the spine.

The mental state is one of apathy and stupor, which, however, is different from the stupor seen in tuberculous meningitis. In the latter condition, the patient appears to be overpowered by sleep as if he were under the influence of some powerful hypnotic. In basic meningitis, the patient looks wide awake. The eyes are open and staring. He looks as if he had been struck speechless in a hypnotic state.

Respiration shows marked pressure symptoms and is very irregular. Pulse, too, indicates the influence of pressure.

Convulsions are very common. There is usually a continuous tonic spasm of the upper and lower extremities which are very rigid in full extension. The wrist is firmly flexed, and the fingers are tightly flexed into the palm. The feet and toes are in a state of complete extension. Clonic, general or local convulsions and twitchings of different parts of the body are likewise frequently seen.

Vasomotor symptoms of marked flushing or blanching of the skin and irregular perspiration are very striking.

Macewen's sign, bulging fontanel, and dilated scalp veins are very marked.

All or any of the pressure phenomena, vomiting and reflex changes and palsies, may occur in this condition as in Type 1.

The appearance of the patient is characteristic and will often first suggest the diagnosis. The patient lies very still. The eyes are wide open and staring. The lids are retracted. In addition some exophthalmos is present, giving a bulging expression to the eye and allowing a large part of the ocular conjunctiva to be seen. There is marked opisthotonos with bowing of the body. The extremities are rigid, in tonic spasm, in the manner described. The patient does not respond. The pupils are

widely dilated and he appears to be blind, often not reacting to light. He does not appear to hear.

Course.—Patients can remain in this condition for several weeks. One case lingered six weeks. Practically every case, with the exception of a very occasional one that responds to treatment, terminates fatally. Out of about thirty-five cases, I know of only four that recovered after developing this lesion.

Relapses.—True relapse occurs in this disease as it does in typhoid and other acute infections. Ker reports relapses in from 15 per cent. to 20 per cent. of his cases. Some of his cases suffered four or five relapses. One physician reports as many as 13.

In my experience, true relapse after complete recovery is decidedly uncommon, occurring in less than 5 per cent. of the cases. Most of the cases of apparent relapse coming under my observation had symptoms of a varied degree of hydrocephalus at the time of their apparent recovery. We know that hydrocephalus, even when accomplished by slight infected fluid containing many meningococci, as is seen in the study of the chronic cases, may be given a very irregular picture. Fever may be absent for a week or longer. Pressure symptoms may be very mild, but severer symptoms recur irregularly, with high temperature and marked pressure signs. This was well illustrated in a recent case, where the patient was comfortable for a week and then developed severer symptoms. It is important not to confuse aggravation of the already existing hydrocephalus, which may or may not be due to an infected fluid, with a true recurrence of the disease after recovery, as occurs in relapse. I believe that most of the cases reported as relapses are not true relapses but are rather the condition I have described. The patient is not altogether well at the time of his supposed convalescence. He very often has distinct objective evidence of hydrocephalus, though subjective symptoms may be very mild. His cerebrospinal fluid at the time of his discharge may be very clear, but we know that these clear fluids especially during convalescence or during chronic meningitis contain a very few meningococci, which can be grown by careful cultivation. Thus, a patient with this condition is discharged. He begins to walk around and to exercise. After a week or longer, the hydrocephalus becomes more marked, the few meningococci may multiply, causing a more turbid fluid and he develops active symptoms with pressure and fever. To casual observation it

appears that he has a relapse, instead of which he has had a recrudescence.

Symptoms of relapse, though similar to those in an acute attack, are usually milder. As a rule, septic phenomena are not so pronounced, while hydrocephalus with its pressure symptoms as previously described is more marked. Under proper active treatment these cases usually clear up within a few days. If they be prematurely discharged, however, the same condition will recur. The warning these relapse cases sound is, not to discharge meningitis patients too hastily, to be quite certain that the hydrocephalus is no longer present or is rapidly vanishing, and that the organisms have disappeared from the cerebral spinal fluid.

702 Argyle Building.

(To be continued.)

PERICOLIC ADHESIONS

A FACTOR IN NONRELIEF OF SYMPTOMS FOLLOWING OPERATIONS FOR CHRONIC APPENDICITIS*¹

CLEVELAND H. SHUTT, M.D.

ST. LOUIS

Patients not infrequently return to their physician or surgeon some time after operation for a condition diagnosed as chronic appendicitis, complaining of distress in the right side. The original symptoms persist and in some cases gradually increase in intensity.

Evidence of preexisting appendicitis has been found in about 70 per cent. of persons over 60 years of age. In a large clinic 500 appendices were removed as routine in connection with abdominal operations for other conditions. The laboratory reported that 76 per cent. showed chronic inflammation. A review of the case histories failed to show any evidence of attacks of appendicitis. The pathologic condition of the appendix may therefore bear but little relation to past illness or complaints.

It seems that a more definite line must be drawn in the diagnosis of chronic appendicitis, and pathological findings in the appendix must not alone constitute justification for removal without further exploratory examinations. If the symptoms are not relieved, the patient may have had other trouble although the appendix is found microscopically abnormal.

X-ray reports from a number of large

clinics and my personal experience with reports of leading X-ray men show a considerable number of failures to outline properly and completely many intestinal conditions. Radiologists state that about 45 per cent. of appendices can be visualized; they also state that perhaps their best contribution is in describing certain anatomic observations as accurately as possible. The case is then referred back to the clinician for final analysis. Within the past week I have operated upon two intestinal cases in which X-ray examinations by thoroughly experienced men failed to determine either the diagnosis or the proper course to be pursued in treatment. The clinical evidence proved to be the most valuable factor.

Pain in the appendiceal region is unreliable as a guide for simple appendectomy without further exploration in chronic cases. Thirty-five to forty per cent. of cases require additional operative work.

It is well recognized that numerous pathological conditions, such as kidney, ureter and gallbladder affections, chronic arthritis, chronic tubercular peritonitis, pelvic disorders and pathological membranes, as described by Jackson and others, about the head of the cecum, have to be carefully considered in chronic cases where the chief trouble on first examination seems to originate in the appendix.

Another condition that has demanded our great interest and attention in the past few years is binding adhesions extending between the parietal peritoneum and the ascending colon, usually originating entirely independent of the appendix and in many cases involving the hepatic flexure. I have operated on seventy-three cases in which binding pericolic adhesions were the major pathological condition and in over one-half of these cases there was no gross appendiceal pathology and no adhesions in the appendiceal region. I have had seventeen cases of pericolic adhesions in which previous appendectomy had failed to relieve the original symptoms. Secondary operation with severance of the pericolic bands afforded complete relief in all but three cases and these were much improved.

The chief symptoms of pericolic adhesions are: Tenderness over the ascending colon, frequently centered in the region of the hepatic flexure and in not a few cases elicited from the appendix region to the rib margin in the right anterior axillary line. Due to intestinal stasis, there may be much gas formation, some temperature, often there is complaint of weakness, lassitude, mental dullness, headaches, digestive disturbances, chronic constipation, gaseous eructations, abdominal distension and spasm of the pylorus. Pylorospasm may oc-

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

1. From the surgical service of Evangelical Deaconess Home and Hospital.

cur in some cases after meals and may be a major symptom. The complexion is frequently sallow, skin waxy, and chronic constipation exists, although several bowel actions may occur daily. These are soft or semiliquid in character due to fermentation from stasis.

Intestinal stasis is receiving attention from our most competent investigators and is recognized as the end result of a variety of pathologic conditions which require full clinical recognition. Each case requires independent and intensive investigation. The subjective and objective symptoms must not be submerged for other diagnostic methods. The various laboratory tests and X-ray examinations, often expensive, are valuable in selected cases but are inconclusive in so many cases that the physician in charge of the patient's destiny cannot allow the reports of laboratory tests to be the major factor in the therapeutic decision in a large percentage of cases. I have had quite a number of surgical patients who had long been denied proper treatment because laboratory tests did not conclusively indicate the true pathological condition. We all must recognize the great worth of laboratory and X-ray examinations made by well trained and well seasoned men but, in my opinion, we have not yet arrived at the point where we can afford to surrender clinical evidence, skilfully collected, as a major decisional factor in a large percentage of cases of intestinal stasis. Many cases originate from conditions which may be cured or benefited by exercise, diet and well directed medication, as outlined by Smithies and others giving special thought to this subject. A considerable number and particularly those with definite tenderness over the right colon, require surgical attention. Such cases are at least entitled to exploratory examination if a cure is not obtained in a few weeks or at most months, by other methods.

Pericolic adhesions are frequently difficult to observe even after the incision is made, but the surgeon can be assured of the condition if he finds decreased mobility of the colon or some degree of erasure of the white line or taenia coli. If the colon cannot be brought forward into a fairly generous incision close to the outer margin of the right rectus muscle, one must suspect binding adhesions. Careful inspection and also gentle palpation along the external lateral surface of the colon will allow a quick and accurate decision; but the extent of adhesion surface can only be determined after severance is under way. There is frequently constriction of the bowel at the hepatic flexure which causes abnormal dilatation of the cecum and at times the ileum.

This causes ineffective peristaltic effort which in time may produce a certain degree of reverse peristalsis and even pyloric spasm. Intestinal stasis allows of fermentation and gas formation, and as the condition becomes more pronounced there is a back pressure against the pylorus. Within the past three months I have operated upon two patients with binding adhesions of the colon whose major symptom and complaint was gastric distress due to pylorospasm. In fact, both had received extended tests and X-ray examinations to determine possible stomach pathology. They were not told that ulcer was present but neither were they recommended for surgical attention. One patient was a man, 54 years of age, who had lost twenty odd pounds and much strength due to digestive disturbance and pyloric pains. He was examined and treated by physicians of more than average ability but obtained no satisfactory relief. He consulted several physicians and then cultists and finally a clinician who asked for surgical consultation. The clinician was surprised when a diagnosis of pericolic adhesions was made and more surprised when they were demonstrated at operation. He was delighted when the patient reported to him four weeks after the operation that there was a complete cessation of digestive trouble and that he had already gained 15 pounds. Complete relief cannot be obtained in all cases but it can be fairly stated that over 95 per cent. of my patients are thoroughly satisfied with their postoperative condition.

I have been frequently questioned regarding the recurrence of pericolic adhesions. They do re-form to some extent but in a new position and with a new effect if the bowel is carefully and properly replaced before the abdomen is closed. It is known that a bowel which has been moderately handled will have decreased peristaltic movements for 24 to 48 hours. If the colon and cecum are replaced in a forward position and no loops of ileum permitted to remain between the cecum and lateral abdominal wall the new adhesions will attach anteriorly on the parietal peritoneum and produce a suspending rather than a binding effect. The period of 24 to 48 hours of decreased or inactive peristalsis allows ample time for new attachments to occur in advantageous position. Proper bowel replacement must be emphasized. With an experience and considerable interest in this subject for a number of years, I can report most gratifying results.

All symptoms of pylorospasm in these cases have been completely relieved. Only three cases have failed to obtain complete relief from

their complaints, and these have been considerably improved. All have gained from five to thirty-five pounds in weight.

SUMMARY

1. Binding adhesions of the colon are a frequent cause of intestinal stasis with consequent toxic absorption symptoms.

2. All cases of suspected chronic appendicitis should receive most careful clinical study and proper laboratory examinations, but the clinical evidence should not be considered as minor in the final decision.

3. The surgeon should be consulted in obstinate cases of intestinal stasis. Release of binding pericolic adhesions is frequently advisable and highly beneficial.

4. In all cases of suspected chronic appendicitis with any suspicion of toxic absorption the incision should be large enough and so located as to permit of thorough examination of the ascending colon and other viscera.

5. Intestinal stasis cases caused by binding pericolic adhesions make satisfactory recoveries in a large percentage of cases when properly operated upon.

305 Metropolitan Building.

DISEASE OF THE LINGUAL TONSILS*

HAL FOSTER, M.D.

KANSAS CITY, MO.

Years ago, Sir Morell Mackenzie and Lennox Browne, of England, called attention to the diseases of the lingual tonsils. They were soon followed by Austrian laryngologists, also by Knight, Bosworth, Lefferts and Ingals in the United States. In recent years some of the members of this Academy have written upon this subject. Notwithstanding all the above articles the subject remains interesting, both on account of its frequency and the seeming neglect it receives at the hands of many physicians engaged in daily practice.

During the recent winter I saw quite a number of patients suffering from lingual tonsil disease. Several of them had been treated a long time and were not benefited. They had taken large quantities of cough syrups, were very nervous, unable to sleep at night due to the distressing tickling sensation in the throat, had constant desire to swallow and irritable cough. One of them was expectorating blood-stained mucous. The expectoration of blood had brought on a general depression, caused

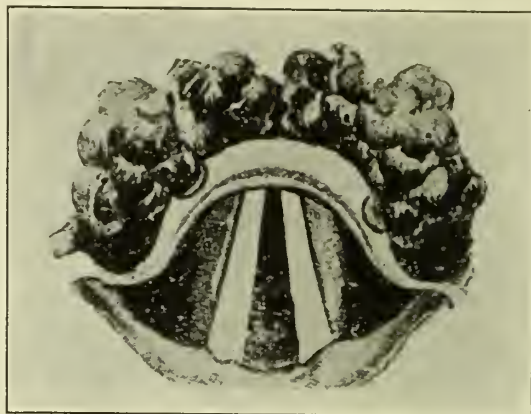


Fig. 1. Lingual Tonsils

by fear of something dreadful just ahead. They were nervous from loss of sleep, due to tickling in the throat and a constant desire to cough and swallow.

After seeing these patients relieved and restored to their normal state of mind and health, I thought it would not be out of place or time to call attention anew to this all-important but seemingly neglected subject.

The lingual tonsils are located on the base of the tongue, just in front of the epiglottis, and consist of lymphoid tissue. This bilateral mass of tissue is irregular and frequently well developed in adults. It will often be found to continue laterally with the lower part of the faucial tonsils.

The physician may see here all the diseases affecting the faucial tonsils, namely lingual varix or varicose veins, abscess or lingual quinsy. Blood may be seen escaping from these varicose veins, by the use of a laryngeal mirror. They may be the seat of focal infection. I have seen several cases of lingual quinsy. This kind of abscess will be found just underneath the capsule. They should be immediately incised and contents thoroughly evacuated under local anesthesia. In disease of this region one will have to treat the entire glosso-epiglottic region when found to be involved. Tubercular and specific ulcers are occasionally found here, also carcinoma.

Etiology.—Some individuals seem prone to have varicose veins. Intemperance in eating, drinking, smoking, repeated attacks of cold and chronic infected faucial tonsils are prominent factors in causing disease of the lingual tonsils.

Pathological Conditions.—Bleeding from the varicose veins on the surface of the tongue, acute and chronic inflammation, hypertrophy from the size of a pea to a walnut, inflammation following influenza, measles and scarlet fever. I have seen keratosis located in this

* Read before the Thirty-Third Annual Meeting of the American Academy of Ophthalmology and Otolaryngology, St. Louis, October 18, 1928.

region and also varicose veins. The veins may be of a bluish or a very red color. Vincent's angina may be located here when the faucial tonsils are affected. The most frequent affection is hypertrophy, especially in middle life. Both men and women are afflicted but it seems to occur more frequently in men. Inflammations following streptococci infection are often seen in the lingual tonsils.

Method of Examination.—The lingual tonsils can be seen by the use of the laryngeal mirror and headlight.

Symptoms.—A constant dry cough. Empty swallowing. Sensation of a foreign body in the throat. A tickling sensation at night which prevents sleep and causes these individuals to be very nervous. I have seen several cases where the lingual tonsils were so large as to press on the epiglottis and cause some interference with breathing. Lingual quinsy will at times cause some respiratory disturbances. In the great majority of cases the disturbances will be local and harmless, as far as life is concerned. The loss of sleep and the sight of expectorated blood will cause these patients to be nervous and unfit for their daily vocations, brought on from fear. As you well know, fear is a mighty factor in causing mental depression in our patients. It may be difficult for the patient to localize correctly the seat of the trouble. The distressing symptoms vary at different times, marked with greater intensity at night. While eating the discomfort disappears. All symptoms are more marked in neurotic subjects. On examination with the laryngeal mirror, the area between the epiglottis and the base of the tongue will be found a reddish-like tumor, consisting of lymphoid tissue, hypertrophied in size from a buckshot to a marble or olive. Some of these individuals will tell you when the laryngeal applicator touches the location of distress.

Diagnosis.—Made easily by means of the laryngeal mirror and a good reflected light. Hemorrhage from the throat is of course not always from the lingual tonsils. It may be due to pulmonary tuberculosis. Bleeding from the lingual tonsils can be seen by the laryngeal mirror and the source of the blood demonstrated. The sputum should always be examined for tubercle bacilli and a careful chest examination made. Rales are absent in lingual tonsil disease.

Prognosis.—Aside from the great local and mental discomfort produced by lingual tonsil disease, this condition yields quickly to the proper treatment and leaves no unpleasant sequel in its train. The lingual tonsils should be examined in all undiagnosed coughs.

Treatment, Medical and Surgical.—That

treatment should be used, which the laryngologist's experience has taught him offers the best results and least discomfort to his patient. The medical treatment consists of topical applications of astringents, nitrate of silver, tincture of iron in glycerin, iodine in glycerin. Caustics, such as chronic and trichloroacetic acid, can be used to advantage. In applying any of the above named drugs great care should be used not to permit the drug to spread all over the pharynx, but confined strictly to the area or spot desired to be treated. The mild cases will be relieved quickly by applying weak solutions of iodine in iron and glycerin, using great care not to use in such large quantity as to run all over the base of the tongue, but confined strictly to the place desired to be treated. Solutions of cocaine should be applied before using any severe measures. In my hands nothing compares with the galvanocautery at a red heat. Cocaine or butyn can be applied locally for anesthetic purposes. The long curved galvanocautery electrode will give splendid results. After the cautery is used there is not very much pain.

The after treatment consists in using cracked ice in the mouth, spraying the throat with menthol in benzoinol. Orthoform lozenges will control the pain if taken immediately before eating. Hot antiseptic gargles should be used several times a day. If the galvanocautery electrode is used at a red heat there will be no after bleeding. Anesthesin-calcidin troches dissolved slowly in the mouth every three or four hours will make the patient much more comfortable. Lozenges made of anesthesin-acetanilid in cocoa paste repeated every four hours will afford great relief after the cautery

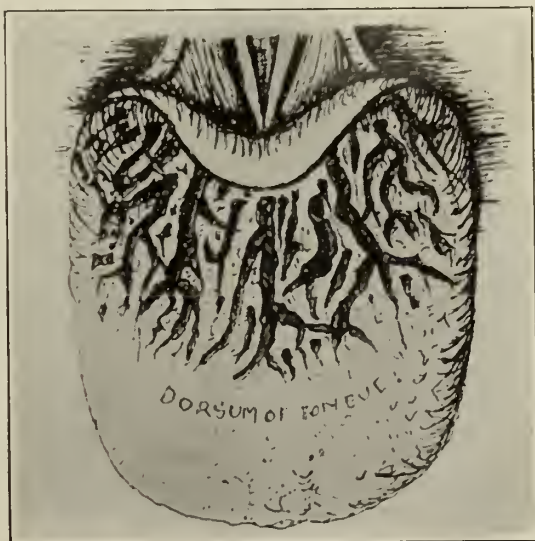


Fig. 2

has been used. The lingual tonsillitome can be used if the surgeon desires, also the snare with a curved cannula. One should use the local anesthetic of choice in removing the lingual tonsils. The writer has relieved large numbers of patients of this annoying and distressing condition, along with the troublesome hacking cough, hemorrhage and the fear that always goes with lingual tonsil disease.

In all undiagnosed coughs look to the lingual tonsils. By doing so you will make many grateful patients who will be your friends while life lasts. We should never forget in laryngology that frequently it is the small ailment corrected that benefits our patients and establishes a lasting confidence in the medical profession that nothing else can do. Happy individuals, grateful and benefited patients are the physician's greatest friend. This we should strive to bring about along the journey of life.

1014 Chambers Bldg.

RHEUMATIC HEART DISEASE TREATED WITH THE SMALL VACCINE*

REPORT OF TWO CASES

JOHN ZAHORSKY, M.D.

ST. LOUIS

Some of us who have followed the studies of Dr. J. C. Small and his co-workers on the streptococcus cardioarthritides have been impressed by the importance of this painstaking and brilliant clinical research.¹ I felt convinced that the real cause of acute rheumatic fever had been discovered and the serum and vaccine developed by their researches deserved clinical trial in practice.

I began using the serum and vaccine in a few cases in July and August, 1928. The report of two cases follows. These cases were treated in private practice in the home. Both were treated by the vaccine only and salicylate as the symptoms seemed sub-acute. I judged that the temporary immunity produced by the serum was unnecessary and I wanted to avoid the disagreeable effects of serum disease. Both cases present a group of symptoms which we recognize clinically as having an uncertain prognosis.

These symptoms—arthritis, chorea, endocarditis, pericarditis and numerous rheumatic nodules—indicated a relentless dis-

ease which ends fatally in most cases. I quote from Allbutt and Rolleston:² "In the acute rheumatism of children, when the nodules are many and large, they have an ominous association with progressive endocarditis and pericarditis of the most serious kind; they indicate grave danger, a carditis which is uncontrollable and advances almost inevitably to a fatal ending."

REPORT OF CASES

Case 1. C. K., female, 6 years old, seen first in May, 1928. Fairly nourished girl, good color and bright appearance. She gave a history of repeated colds and sore throat during the winter. Family history good. No recent severe illness. Two days before the onset of the illness she walked many steps in inspecting the State Capitol building and began to complain of her feet and ankles on the following day. This persisted and fever developed.

She was seen two days after the onset of fever. She could not walk; pain in calves of legs and ankles. She felt sore all over the body. She had no coryza, no sore throat, no cough. Her nose bled the night before; appetite poor, teeth healthy, tonsils small. Temperature 101°, pulse 126. Both ankles were swollen and tender but very slightly reddened. A marked painful stiffening of the left hip joint was discovered. No other joint involved. While the heart sounds were rapid no murmur could be heard. Some pus was found in the left nostril. She was treated by moderate doses of salicylates and a weak solution of mercurochrome was used in the nose twice a day.

She was seen every 3 or 4 days. The symptoms did not ameliorate. The temperature persisted at 100 to 102, the joints of the fingers became inflamed, later one knee joint became tender and swollen. Ten days after the onset a soft systolic murmur became audible. This increased in intensity and was quite marked one week later. She improved for a week, then the joints became tender again but the temperature remained subfebrile during the next three weeks. She commenced to walk a little.

June 29, 1928, had very little fever, the heart was enlarged, excited and marked systolic murmur is present. Numerous rheumatic nodules were found over the knuckles. Began treatment with Small's vaccine (1 to 1000). Began with two minims and gave one injection about every 5 to 7 days. She received seven injections altogether. At this time a mixture of sodium benzoate and sodium salicylate was also prescribed. The nodules disappeared in three weeks and the endocarditis subsided. Her strength returned with her appetite and her heart was strong. She feels well. Slight systolic murmur and slight cardiac enlargement persist.

Case 2. F. K., girl, 10 years old. She is fleshy and seems overweight. Seen first May 26, 1928. She gave a history of choreic symptoms for two weeks. Examination showed a hemichorea of the right side. No history of sore throat or respiratory disease, tonsils small, nose negative, temperature 101, no joint pains. Urine negative, heart sounds rapid but no murmur.

She was given a mixture of salicylates and bromides; very little effect was observed but her appetite improved. Temperature was slight (100). She

* Read before the St. Louis Pediatric Society, October 12, 1928.

1. Small, James C.: Rheumatic Fever, *Am. J. M. Sc.* 175:638-675 (May) 1928.

2. Allbutt, T. C., and Rolleston, H. D.: *System of Medicine*, New York City, Macmillan Company, 2:657.

remained very restless at night. On August 12 complained of right ankle, and a few days later right knee was painful on motion. She also complained of pain in back of neck. This became very severe, especially at night. The pain was acute and paroxysmal. Pulse 130, temperature 101, heart excited and faint systolic murmur heard. A liniment of guaiacol was used and sodium benzoate prescribed.

June 29, 1928, one week later, the shooting pains in the neck still continued. The heart seemed more severely affected and numerous rheumatic nodules appeared in the knuckles, elbow and the ankles. Patient was put to bed rigidly; again treated with benzoates and salicylates. More nodules appeared and a distinct pericardial friction sound became audible. Systolic murmur became loud and rough. The cardiac impulse moved outward. Her nutrition remained good. The temperature remained low, 99 to 100. The heart sounds remained rapid, 130 or more.

On July 5 began the injections of Small's vaccine (1 to 1000). The first dose was $1\frac{1}{2}$ minims given every three to five days. The increase in dosage was small, but nevertheless severe symptoms of nervous irritation arose—extreme restlessness, chorea, pain in epigastrium, loss of appetite and rapid irregular respiration. No change in the physical signs and no rise in temperature.

The injections were discontinued after the fourth injection and she was given salicylates. The patient improved, heart became less excited and all the nodules but one disappeared. I could not hear the pericardial friction sound. Three weeks later the return of the pericardial friction sound and increased excitement of the heart suggested a relapse. The parents objected to further treatment by the Small vaccine or serum. The treatment by salicylates was continued. Digitalis was begun about August 1, in small doses, 5 drops of the tincture 3 times a day. The digitalis seemed to nauseate her very much.

Digalen, 10 drops 3 times a day, was substituted July 20, but this provoked vomiting. She died suddenly on August 22, 1928.

The first patient did not show any great susceptibility to small doses of the vaccine and the disappearance of the nodules and the prompt subsidence of the endocarditis was very gratifying. I have never seen such quick result.

The second case also responded to the vaccine followed by salicylates, but she showed an extreme sensitiveness to the vaccine which was very distressing. This alarmed the parents so that further treatment by serum or vaccine was objected to. Nevertheless, the salicylate treatment after the vaccine injection was followed by a disappearance of the nodules, a disappearance of the pericardial friction sounds and an improvement of the heart sounds. The battle seemed won but a relapse occurred three weeks later. She seemed very sensitive to digitalis, even small doses producing nausea and vomiting.

I have used the serum in one case and the vaccine in three other cases, but as these were cases not definitely indicating an infec-

tion by the streptococcus cardioarthritides they are not added in this report. Two were cases of chorea, one was an endocarditis associated with a pulmonary lesion (abscess), and the other was a polysynovitis of obscure origin.

We have a powerful therapeutic agent in the Small treatment of rheumatic disease and increasing experience will gradually bring out the indications and contradictions.

536 N. Taylor Avenue.

SOLAR AND LAMP THERAPY IN TUBERCULOSIS

OBSERVATIONS OF RESIDENT STAFF,
KOCH HOSPITAL

R. L. EHRlich, M.D.

KOCH, MO.

Perhaps the most outstanding advancement in the treatment of tuberculosis with special reference to extrapulmonary forms of the disease, has been through the application of radiation, particularly ultraviolet radiation. Indeed, so much attention is given to this subject at the present time that a succession of new types and modification of existing lamps are appearing on the market.

Before commenting on the relative efficacy of the different types of lamps, your attention is directed to the scheme below showing the divisions of the solar spectrum. The solar spectrum is made up of waves that differ in regard to length, with corresponding difference in quality of energy. The ultraviolet waves are the short waves and induce the most active chemical changes. At the other end of the spectrum are the long or heat waves, with the light waves intervening.

Wave lengths are expressed in three ways:

1. Dividing millimeter into 1,000 parts = μ
2. Dividing millimeter into 1,000,000 parts = $M\mu$
3. Dividing millimeter into 10,000,000 parts = AG.

(AG = Angström Units.)

The sun's rays causing tanning range from 2900 to 3100 A G. and are practically lacking in winter sunshine in this climate. Window glass absorbs ultraviolet below 3300 AG. which explains why we do not pigment through ordinary glass.

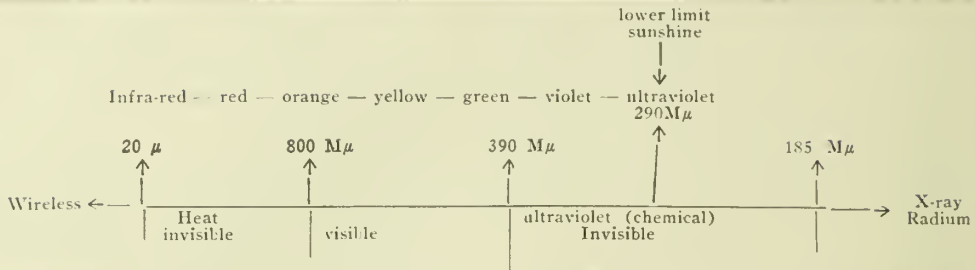
SOURCE OF ULTRAVIOLET ENERGY

All artificial light contains ultraviolet radiation though insignificant in amount. The sun's ultraviolet rays are intense from 397 $M\mu$ to 340 $M\mu$, and less from 340 $M\mu$ to 291 $M\mu$.

Carbon arc lamps give strong rays from 397 to 300 $M\mu$, and weak rays from 300 to 200 $M\mu$.

Mercury arc in quartz lamps give powerful

Table 1. Divisions of the Solar Spectrum Graphically Shown



ultraviolet rays from 397 to 300 $M\mu$, and strong to 230 $M\mu$ and weak to 185 $M\mu$.

It has been claimed by manufacturers that recent carbon arc lamps approach the efficacy of the mercury arc lamps. While the carbon arc lamps imitate more perfectly the solar spectrum by having the light and infra-red rays, still heat or thermotherapy must be used with caution especially when the extrapulmonary lesions under treatment are associated with active pulmonary tuberculosis. Indeed, to avoid the infra-red in the sun's rays it is customary to give solar therapy in the morning and evening escaping thereby the extreme mid-day heat. On the other hand mercury arc lamps give little heat.

The antirachitic principle of the solar spectrum is poor and inadequate in winter in this climate. Lamps are from 30 to 40 times more potent with regard to ultraviolet radiation than the sun. Nevertheless, it is difficult to evaluate the benefit in solar therapy from the light rays and associated air bath.

It is not possible at this time to go further into the physics of light so excellently dealt with by Mayer.¹

At Koch Hospital we have been using sunshine and more recently carbon arc lamps and mercury arc in quartz lamps, both air and water-cooled. We have been treating such extrapulmonary forms as intestinal, bone and joint, lymph node, peritoneal, and laryngeal tuberculosis with rather uniformly good results. With advanced pulmonary cases during treatment of the extrapulmonary lesion the chests are covered and great caution used with regard to dose or time exposure. In our experience, advanced pulmonary cases do better when their extrapulmonary lesions are treated with lamp therapy rather than sunshine. Lamp therapy is of brief duration and can be administered at the bedside of seriously ill patients, which apparently disturbs these patients less than moving them to the solarium.

In Europe preference is given to the carbon arc lamp. Little attention has been given to the mercury arc lamp and therefore little ex-

perience from its use has been accounted for in European literature.

In starting generalized solar therapy the body is exposed in zones as follows: 1. Feet to ankles. 2. Ankles to knees. 3. Knees to hips. 4. Hips to chest. 5. Chest to neck.

The first day zone 1 is exposed five minutes. The second day zone 1 is exposed five minutes, and then zone 1 and zone 2 exposed for five additional minutes, and so on day by day extending the time five minutes until pigmentation will permit three hours' exposure twice daily. A special form is used for keeping record of exposures.

In our experience solar therapy should be restricted to patients having little or no lung involvement. However, we use the mercury arc lamp over the abdomen for treatment of intestinal tuberculosis even in the presence of advanced pulmonary involvement, with symptomatic improvement. As has been pointed out the mercury arc is weak in infra-red rays and powerful in ultraviolet rays to which facts have been attributed superiority over sunshine for treatment of intestinal complication of pulmonary tuberculosis.

Contraindications to heliotherapy are generally stated as arteriosclerosis, decompensated heart lesions, hypertension, nephritis, high fever, and toxemia. We do not use radiation therapy in highly toxic cases, unless in our opinion the extreme toxicity is more attributable to the intestinal complication than due to the pulmonary lesion. Under such circumstances we use the mercury arc lamp over the abdomen and often find marked symptomatic improvement.

Every case must be considered individually. The temperature and pulse are guides to dose and aid in preventing the unpleasantness of overtreatment and indicate when unfavorable results are obtained.

The symptoms of overtreatment besides that of ordinary sunburn are, aggravation of the disease with associated manifestations of greater toxicity and nervousness.

The good results of Rollier² from solar

therapy are probably attributable to the altitude of his sanatorium where the atmosphere is cold and clear twelve months of the year. In St. Louis we get little sunshine in the winter months; nevertheless, what we lose in sunshine we adequately compensate for through the liberal use of lamps.

From our experience we feel that the duration of sanatorium treatment has been markedly reduced in many of our cases through radiation therapy. We use heliotherapy as a supplement to other well established forms of treatment of tuberculosis and in no sense as a substitute, except possibly to a restricted extent as a substitute for certain surgical procedures not definitely indicated.

Rollier³ considers the X-ray a most useful adjuvant in the treatment of lymph node tuberculosis. Degrais and Bellot⁴ regard radium therapy as a very effective method of treating skin and lymph node lesions. Robinson⁵ indorses radium treatment of tuberculous cervical adenitis. We have not used X-ray or radium in the treatment of any form of tuberculosis at Koch Hospital.

The distribution and results of 93 cases treated almost exclusively with solar therapy are shown in Table 2.

Table 2. Cases Treated With Solar Therapy

Location	Percentage of Total	Percentage Arrested	Percentage Improved	Percentage Unimproved	Percentage Died
Bone	20	26	32	16	26
Lymph node	13	58	42		0
Spine	14	18	45	23	14
Intestinal	40	8	20	22	50
Other forms	3	33	51		16
Suspects only	10	55	44	1	0

We have more recently been using the mercury arc lamp over the abdomen of all patients with intestinal tuberculosis.

The majority of the remaining extrapulmonary forms are receiving solar therapy. However, I would like to add that we are using at the present time a recent model of carbon arc lamp, installed on trial, over bone and lymph node tuberculosis with very favorable result especially when sinuses are present. It appears under such circumstances that the associated heat is not objectionable and indeed seems to have a favorable influence on closing the sinuses.

At this time there are 85 patients receiving light therapy, distributed as follows: Intestinal 34 per cent., lymph node 18 per cent., bone 12 per cent., spine 15 per cent., cases having various sinuses 14 per cent., peritonitis 7 per cent.

Of these, 86 per cent. show varying degrees

of improvement while 14 per cent. are not improved or are worse. Lymph node and bone tuberculosis show greatest response to heliotherapy and intestinal tuberculosis the least. We do not use heliotherapy for treatment of pulmonary tuberculosis for in our experience such cases so treated have shown aggravation of their symptoms.

In giving lamp treatments one may start with generalized exposure at a distance of 30 inches for a minute, or less for those with fair skin. Concentration of treatment is produced by gradually reducing the distance to 18 inches, and at the same time increasing duration of exposures. Lamps attached to the ceiling have greater distance from the patient and therefore necessitate longer exposures.

Carbon arc lamps permit somewhat longer exposures than the mercury arc lamp.

CONCLUSION

1. Sunlight properly used in well selected cases is of great assistance in the treatment of extrapulmonary forms of tuberculosis. Great care must be exercised in its application especially when active pulmonary tuberculosis is present.

2. Sunshine is not a substitute for well rec-

ognized means of treating extrapulmonary forms of tuberculosis but rather a supplement to the other treatment.

3. The heat rays must be avoided, using early morning and late afternoon hours, especially in this climate during the summer.

4. The mercury arc lamp is superior in the treatment of intestinal tuberculosis, and also other extrapulmonary forms when associated with advanced pulmonary disease and much toxicity.

Koch Hospital.

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WASHINGTON UNIVERSITY
CLINICSMULTIPLE NEUROFIBROMATOSIS
(von RECKLINGHAUSEN'S DISEASE)
AFFECTING POSTERIOR ROOT OF
CERVICAL NERVE WITH PRES-
SURE ON THE SPINAL CORD

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Presented at the Friday morning Clinical Conference.

A white girl of eighteen was admitted to Barnes Hospital on January 12, 1928, complaining of inability to use her lower extremities. Since her early childhood she had noted tumors distributed promiscuously over her body. The largest of these, which were situated in a cluster about her right ear and down the right side of the neck, were removed at St. Anthony's Hospital, St. Louis, in 1925, together with a similar circumscribed dollar-sized mushroom-shaped tumor on the forearm. Her general health had always been excellent.

In April, 1927, she fell from a bus and injured her back. Her trouble may have started at that time. She noted no serious symptoms, however, until November, when she felt a gradual stiffening of her legs, greater on the right side. She was taken to a hospital on December third. By Christmas the stiffness and weakness had progressed until she was unable to take a step. She stopped walking on December twenty-six. The stiffness progressed so that, when she lay in bed, her legs tended to cross. On waking, her knees would be drawn up, her ankles so crossed that it was necessary for an attendant to straighten them out.

She was free from pain and complained of no numbness or paresthesia in her legs. Sensations of touch and pain, she thought, were less acute in her legs than they normally had been. Bladder function was disturbed; she could not hold her urine when she felt a desire to urinate. On January 9 she lost control of the anal sphincter and passed many watery movements involuntarily. This difficulty arose after a period of five days during which she was constipated.

Examination showed a girl of eighteen, well developed and with no apparent loss of weight. There were over the chest and abdomen many nodules which seemed to lie directly under the skin. They were attached to the skin, were soft and gave the impression of neurofibromata. A similar nodule was seen under the right ear which was greatly enlarged and about twice the size of the left. It was soft, flabby and



Fig. 1. Showing deformity in cervical region, neurofibromatosis and pigmentation of von Recklinghausen's disease. Note also the large deformed right ear.

felt like the nodules on the chest and abdominal wall.

The cervical vertebrae seemed to be pushed over toward the left. On the right side of the neck there was a large mass to be felt which was attached to the vertebral column. The mass was about 5 cm. in diameter. Tactile, pain and temperature sensations were diminished below the level of the fourth cervical dermatome. There was no ataxia or tremor of the arms but muscular atrophy of the smaller muscles of the hands was noted. There was a spastic paralysis of the lower extremities with hyperactive knee kicks and ankle jerks and with an unsustained ankle and patellar clonus. Both legs were held in a state of spasm.

The X-ray examination showed an extensive destructive process in the seventh cervical and first dorsal vertebrae. This was localized on the right side and involved the bodies and lateral mass of each vertebra. There was also a lack of development of the second rib from its spinal end to the posterior axillary line. On lateral view a slight kyphosis was apparent.

The left femur was also examined. It showed numerous punched-out areas in the distal third of the shaft produced by bone destruction, similar to the lesions described by Brooks and Lehman.¹

A diagnosis of von Recklinghausen's disease was made. The mass was considered a neuro-

fibromatous nodule which had destroyed the vertebrae and was compressing the cord causing a paralysis. It was thought possible that this might have undergone sarcomatous degeneration.

Operation was performed on January 16 under ether anesthesia. Laminectomy was done in the mid-cervical region to the third dorsal. As the relations of the mass to the spinal cord could not be made out, the cord was first exposed above and below the mass when it was possible to remove the mass without injury to the spinal cord. The mass had compressed the spinal cord so it did not pulsate. There was a great deal of difficulty in separating the dura from the tumor mass. It was necessary to cut one nerve root extradurally in order to get the mass out. There was considerable bleeding and the patient's blood pressure dropped to 50 so that she had to be transfused. The cord was pulsating freely but in order to be sure that there would be no compression of the cord I split the dura. Since I did not rupture the arachnoid, no cerebrospinal fluid escaped. The usual closure was made. There was nothing to suggest that the tumor was malignant as it was perfectly encapsulated.

The postoperative course was uneventful. She began moving her legs the afternoon of the same day. On February 10 she began to walk. She was discharged on February 17.

In May, 1928, she slipped and dislocated the right patella, requiring re-entry to the hospital with open reduction, following which she wore a cast on the right leg and remained in the hospital until the middle of June.

After that time she remained perfectly normal, had no pain, was able to walk without



Fig. 2. X-ray of cervical spine showing erosion of seventh cervical and first dorsal vertebrae, taken January, 1928.



Fig. 3. X-ray of left femur showing punched out areas of rarefaction.

difficulty and suffered no cord symptoms until November, 1928, when she developed a weakness of the left leg which has been progressive up to the present time. She suffered no pain and the cutaneous sensation remained normal. Her muscles stiffened so that she had great difficulty in extension or flexion of any of the joints, thereby disturbing her gait very markedly. No new skin neurofibromata had developed and the patient knew of no other neurological symptoms with the exception of the atrophy and loss of strength in both hands which occurred at the time of her operation.

X-ray examination at this time showed operative bone defect in the upper dorsal region and in addition there was an extension of the bone changes formerly noted in this region. A lateral view of the cervical spine showed forward angulation and collapse of the bodies of the fifth and sixth cervical vertebrae with angulation of the body of the fifth indicative of collapse. It was reported by Dr. Sherwood Moore as a malignant tumor of the cervical vertebrae.

In view of the fact that Taylor², of New York, has described angulation of the vertebrae after laminectomy and collapse and partial dislocation of the vertebrae, I was inclined to believe that the changes in our patient might not indicate malignancy. A Thomas collar was fitted by Dr. J. Edgar Stewart with almost immediate relief. Since she has worn this she has been able to get around as before.

Pathological examination of the tumor was made by Dr. I. Y. Olch. His report follows: Material consisted of a lobulated tumor mass about 15 cm. in length. Diameter was about



Fig. 4. X-ray of cervical spine on later admission (November, 1928) showing laminectomy and possibly increased destruction of bone.

that of small intestine. It was nodular, firm, well encapsulated, grayish-red to reddish-white in appearance. Approximate weight 25 grams. Microscopically the tissue was not very cellular but moderately vascular. In places large vascular sinuses were seen. Fibrous tissue dominated throughout the section. There was no nuclear palisading. Methylene blue eosin showed an occasional degenerating ganglion cell. Intermingled with the fibrous tissue that had taken the eosin stain there was found an occasional non-medulated nerve fiber staining very dark. Some cells which are doubtless Schwann cells were found. In the silver carbonate connective tissue stain fibers of connective tissue were wavy and parallel but not wire-like as seen in perineural tumors. There were no degenerated areas. In other connective tissue stains one saw many definite processes ending in bulbs. This definitely placed the tumor in the neurofibroma group since nerve fibers and not collagen end thus.³

DISCUSSION

This case of von Recklinghausen's disease illustrates a complication that is occasionally seen.^{4 5} It is the third one of the sort that we have had in this clinic. The neurofibromatous nodules that are found all over the body are connected with nerve endings. Sometimes they form in the course of a nerve and when, as in this case, they develop along a nerve shortly after it leaves the spinal cord the nodule may compress the cord and give the picture that was seen here.

Although occasionally these nodules undergo sarcomatous degeneration,⁶ in neither of our other two cases was there such a change. In view of this experience I felt that the patient should be given the benefit of an exploration. The tumor that was removed at operation was perfectly encapsulated and histological studies showed nothing suggesting a malignancy.

An unusual feature, and one that is always puzzling, is the rapidity with which the cord recovered after the tumor was removed. Within twenty-four hours after the operation the patient began to move her legs and had a return of bladder function. It is amazing that a cord which was compressed so much should have recovered so rapidly. Apparently the size of the tumor and its rate of growth have nothing to do with the ability of the spinal cord to recover. Nor is the extent to which the cord is compressed any index of how much harm has been done. I have seen cases in which the cord was as thin as a ribbon and yet the paralyzed extremities recovered completely, while in other cases in which the cord seemed little compressed there was very little return of function. In this case the cord was so markedly deformed that the rapidity with which the patient recovered was quite unexpected.

Another feature of great interest was the appearance of the X-rays which seemed to indicate that we might be dealing with an invading malignant process. It was necessary to balance the clinical against the X-ray findings. Since the prognosis was absolutely bad if nothing were done here it seemed only just to attempt relief by operation.

Von Recklinghausen's disease may involve any peripheral nerve, cranial or spinal.⁷ The cranial nerve most frequently involved is the eighth, as has been pointed out by Cushing.⁸ A very large percentage of the cases of acoustic neuromas are neurofibromatous in character. The patients often show some von Recklinghausen nodules on the rest of the body. At times they may be few in number and only enough to justify one in putting the cases into this group. It is of interest that none of our cases of neurofibroma of the eighth nerve have shown malignant degeneration.

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DISSEMINATED MILIARY TUBERCULOSIS WITH JAUNDICE. AN ANATOMIC STUDY

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From the Department of Pathology.
Presented at the Clinical Pathological Conference.

A physician, aged 29, was referred to Barnes Hospital on June 28, 1928, by Dr. Albert Tausig. For several days she had been running a high but remittent temperature accompanied by severe chills that occurred at irregular intervals. Her pulse had been relatively slow. A faint erythematous rash which had appeared on the second or third day of the fever had almost faded when she entered the hospital.

Her previous history was of great interest. Both her mother and father died of tuberculosis. During her childhood she lived with a relative who later died of tuberculosis. In 1914, at the age of fifteen, she lost weight and strength and was told by a specialist in Colorado that she had tuberculosis. After a year of treatment she regained her health, continued her studies, graduated with honors in medical school and undertook the arduous duties of an intern for a period of three years. Although she was always slightly underweight, she was seldom ill.

In 1921 she was operated upon for a ruptured appendix. In 1926 she had an attack which was diagnosed as acute catarrhal jaundice and lasted about six weeks.

Examination at the time of admission revealed a temperature of 103.4° and a pulse of 110. The face was deeply flushed and the fading erythematous eruption could still be seen. A distinct jaundice was apparent in the skin and conjunctivae. The tongue was heavily coated with red edges. The pulse was slow in relation to the temperature. A careful examination of the lungs revealed no abnormalities. The heart was normal. Blood pressure 95/65. Spleen and liver were not palpable. White blood cells 3,800; polymorphonuclears 43 per cent. In the smear a few very young cells were found which might be classed as myelocytes. There was no anemia and the blood culture was negative.

She was observed for fifteen days before her death. Her temperature continued high and irregular (Fig. 1) with frequent chills of great severity, several of which might occur in a single day. At one time her temperature reached a peak of 107.5°. The pulse remained slow in relation to the temperature. The white blood cell count was never higher than 9,000 and usually averaged about 4,000. The jaundice increased daily until it became a deep chrome yellow. During the second week of

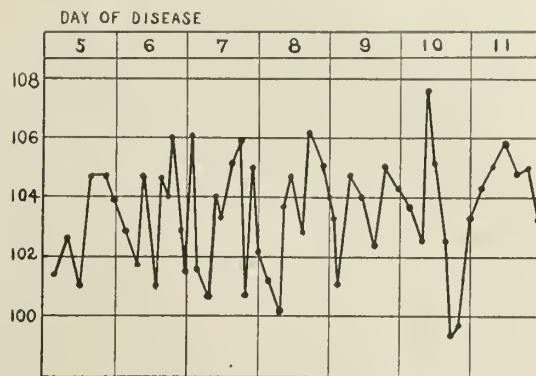


Fig. 1. Temperature chart. The sharp fluctuations were usually accompanied by chills, several of which often occurred in a single day.

observation submucous hemorrhages occurred in the roof of the mouth and there were small ulcerations on the hard palate and cheek. The liver gradually increased in size until it was felt as a tender mass three finger breadths below the costal margin. The spleen was never felt. Respirations gradually became more rapid and on July 7 a friction rub was heard for the first time in the right axilla. Later, coarse rales and tubular breathing appeared over the right lower lobe. An X-ray taken in bed was unsatisfactory but gave evidence of consolidation. A day or two later similar signs were apparent in the left chest. During the last three days of her illness there were manifestations of failing circulation with some edema of the extremities. Her mind was clear until the last day of her illness. She lost strength rapidly in spite of forced feedings and died on July 13, 1928.

Clinically the diagnosis offered some difficulty because of the presence of jaundice. At the time of admission this was the only definite localizing symptom. Furthermore, it was accompanied by the irregular temperature and severe chills which are frequent in serious infections of the liver, such as acute hepatitis, pyelophlebitis and multiple liver abscess. In the clinical discussions the previous attack of acute catarrhal jaundice was suspected of having some significance. The appendiceal abscess was also remembered as a possible focus of abscess formation in the liver.

On the other hand, a disseminated miliary tuberculosis was constantly considered as a probable diagnosis. The history of the death of both parents from tuberculosis, the patient's exposure to the disease during childhood and the previous diagnosis of tuberculosis in the patient herself were considered as most important predisposing factors. The leukopenia, moreover, was consistent with the clinical picture of a miliary involvement while the temperature, although more irregular than is often

seen in a generalized tuberculosis, did not exclude the possibility of such a condition. The development of pleurisy and pulmonary involvement made the diagnosis still more likely. It is well known that in tuberculosis and particularly in tuberculous peritonitis, jaundice may occur because of a blocking of the common bile duct by enlarged lymph nodes at the hilus of the liver. This, however, is by no means a common complication and the early appearance of jaundice in our patient caused doubt concerning the true diagnosis until the time of her death.

PATHOLOGICAL EXAMINATION

The body was emaciated. There was icterus involving the sclerae as well as the skin. Each pleural cavity contained about 100 cc. of clear bile-tinged fluid. There were a few adhesions between the lung and chest wall near the apex of both lungs. On the pleura near the apex of the left lung there was a large depressed scar beneath which a large firm nodule could be felt. Elsewhere the pleura was smooth but countless tiny yellowish-white miliary tubercles could be seen shining through its substance. On section, both lobes were everywhere studded with these extremely small tubercles. In places they coalesced and formed larger confluent masses. The lung was edematous but no bronchopneumonic process could be made out and there was no pus in the smaller bronchi. The solid nodule in the apex proved to be a caseous mass about 2 cm. in diameter, very poorly encapsulated, not calcified and opening directly into a larger branch of the pulmonary vein (Fig. 2). In addition, two smaller caseous masses were seen in the upper lobe. One tracheobronchial lymph node contained several caseous tubercles about .3 cm. in diameter. All other nodes were small and clear. Except for bile staining the bronchial mucosa was normal. The right lung was similar to the left. In the

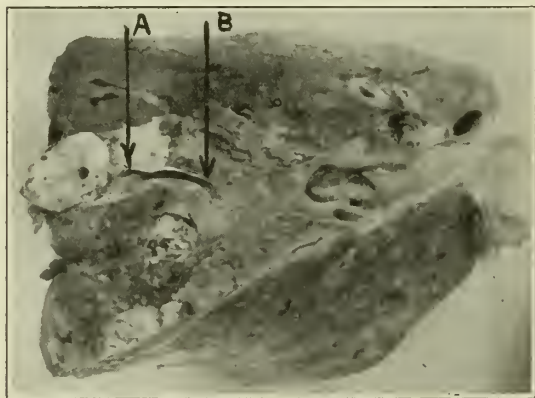


Fig. 2. Photograph of section of lung showing erosion of caseous focus into a branch of the pulmonary vein. A. Caseous focus. B. Branch of pulmonary vein.

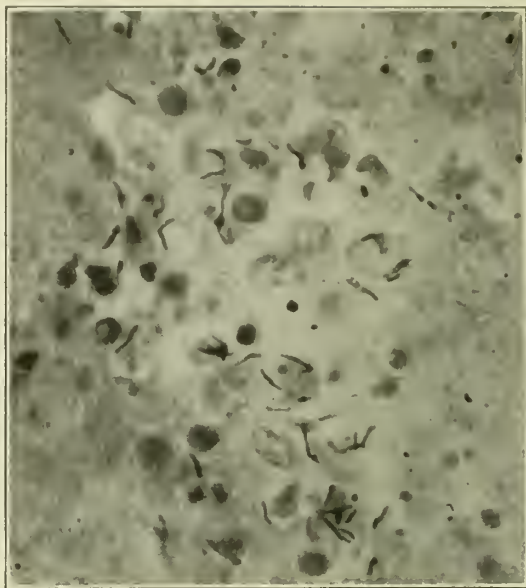


Fig. 3. Photomicrograph showing tubercle bacilli at center of lung tubercle.

apex there was a small caseous focus near the pleura measuring .5 cm. not well encapsulated but not in relation to a bronchus or blood vessel. The rest of the tissue of all three lobes was studded with very tiny tubercles which were opaque, yellow and apparently caseous. No bronchopneumonic area was seen in this lung. The lymph nodes at the hilus were small, did not contain old tuberculous foci but were studded with recent miliary tubercles similar to those found in all the organs.

The heart, aside from intense bile staining of the valves, showed no unusual change. This was also true of the attached portions of the aorta and pulmonary vessels. The pericardium was smooth and contained the usual amount of fluid.

The abdomen contained about 1000 cc. of bile stained fluid. The transverse colon dipped down to the region of the cecum and was adherent at this point both to the abdominal wall, the cecum and the first part of the ascending colon. The appendix could not be found.

The liver weighs 1600 gms. Its capsule glistened and at first glance looked smooth but when observed from an oblique angle one could see many tiny pinpoint projections from its surface. In such light it looked as though fine grains of sand had been sprinkled on the surface of the organ. These were undoubtedly miliary tubercles so small that they were just within the range of visibility when placed in such a position as to cast a shadow. On section the liver was jaundiced. The lobulation was prominent due to yellowish-brown bands of tissue surrounding each portal space. No tubercles could be seen on the cut surface.

The gallbladder was small, thin-walled and it contained a very clear bile. Its mucosa was smooth. Pressure upon the bladder caused bile to flow into the duodenum from the ampulla of Vater. A probe could be passed through the common bile duct to the liver. To judge from the gross appearance of the organ the only explanation for obstruction to the outflow of bile was the possibility that pressure was exerted by two enlarged lymph nodes situated along the course of the common duct near its bifurcation. These nodes were swollen and edematous but, grossly, no signs of tuberculosis could be seen in either. With later microscopic examination another explanation seemed more probable.

The spleen was relatively large, weighing 360 gms. The capsule was smooth. A yellow infarcted area was present on the diaphragmatic surface. On section, it extended into the splenic tissue for about an equal distance. It was evidently a necrotic, bile stained infarct. A more recent infarct, of light brownish-red color, was seen near the inferior tip of the organ. The pulp was firm and dark red. No Malpighian bodies could be made out but the cut surface was speckled with tiny yellow tubercles, so numerous as to suggest the appearance of salt shaken upon the surface.

Pancreas was normal. The serosa of the gastro-intestinal tract was smooth and shiny. The mucosa was everywhere grayish-yellow and velvety. No ulceration was seen. The mesenteric lymph nodes were not enlarged.

The adrenals were normal.

Both kidneys were alike in size and appearance. The left weighed 120 gms. Its capsule

stripped with ease exposing a smooth surface. On section, the cortical markings were distinct and regular. A few tubercles could be made out in each kidney.

The uterus, tubes and ovaries appeared normal but they were neither removed nor opened.

The brain was not examined.

Microscopic examination.—Lungs: Sections from both upper lobes contained old, caseous lesions. On the right side there was just one of these measuring about 1 cm. in diameter and a portion of it extended to the pleural surface. The section from the left apex contained a group of four smaller caseous lesions that either actually fused together or came very close to each other at a central point from which they all radiated out into the surrounding lung tissue. At or near the centers of these old lesions there was some carbon pigment, about which there was a zone of granular pink staining structureless material. Towards the periphery, however, although the tissue was still necrotic, it was sprinkled with tiny blue specks, unquestionably nuclear fragments, and in places the outlines of the alveolar walls could still be made out distinctly, even though they no longer took a nuclear stain. Indeed, by closing slightly the substage diaphragm one could make out the ghost-like remains of cells filling up these alveolar spaces. Such clear structure in this necrotic mass could represent a recent peripheral advance from the older central lesion. Only the merest wisps of loose fibrous tissue surrounded these caseous lesions and separated them from the lung tissue. This thin connective tissue capsule was infiltrated with lymphocytes that occasionally congregated in small groups. In its meshes were also found a few isolated giant cells and some well formed fibrous tubercles containing giant cells but not yet showing caseation.

The rest of the lung tissue away from these older lesions showed a remarkable change. Scattered everywhere there were small areas of consolidation. Where these were not numerous or large enough to run together the intervening alveoli were often filled up with coagulated, edematous fluid containing a few cells so that only an occasional group of clear alveoli remained. The centers of these consolidated areas were often composed of a mass of cells undergoing caseation, sometimes large enough to destroy the walls of several alveoli. Immediately about this necrotic core the alveoli were densely packed with cells most of which were polynuclear leukocytes. There were also a few lymphocytes, some large mononuclear cells and some red blood cells. More distant alveoli contained large mononuclear cells, some isolated, others with their cell bodies fused together to form small epithelial-like masses. Even in such places there were polynuclear leukocytes and occasional lymphocytes.

By means of acid-fast stains, great numbers of tubercle bacilli were revealed in these central caseous masses and the large mononuclear cells, even when occurring singly, usually contained phagocytized bacilli. (Fig. 3.)

Liver: The liver was riddled with small cellular tubercles. The extent of this dissemination was astounding (Fig. 4). It is not an exaggeration to say that nowhere in two large sections could one 16 mm. field be found that did not contain several tubercles. For the most part these were situated at or near the periphery of the lobule. Often the portal

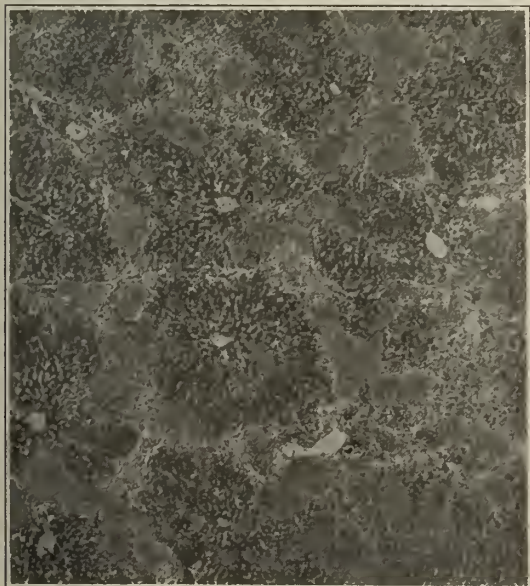


Fig. 4. Photomicrograph of liver showing periportal tubercles.

area was surrounded by tubercles. Although it seemed almost as if enough liver tissue had been destroyed to produce the jaundice, pressure on the smaller bile radicals near the periphery of the lobules appeared to be an even more interesting cause.

These liver tubercles were composed almost exclusively of epithelioid cells that occasionally fused to form an imperfect giant cell. Coagulation necrosis was sometimes seen in the centers of these young tubercles and now and then a few lymphocytes were found at their periphery. Tubercle bacilli could be recognized by staining the liver sections with carbo-fuchsin.

Three or four cellular tubercles similar to those found in the liver were encountered in the pancreas.

Innumerable tubercles were also found in the spleen sections. They resemble more those seen in the lung, inasmuch as they were composed of a central core made up of necrotic and coagulated tissue sprinkled over with cellular debris and pyknotic nuclei. About this center was a wide zone of radially arranged epithelioid cells in which one could see an occasional polymorphonuclear leukocyte. These tubercles were much larger than those seen in the liver. There was also a recent anemic infarct in which, however, no occluded vessel could be found.

Aside from a few cellular tubercles similar to those seen in the liver, the kidneys were quite normal.

The adrenal contained a number of small cellular tubercles without giant cells. They were merely areas of necrosis infiltrated with polymorphonuclear leukocytes, lymphocytes and an occasional mononuclear cell. They occurred for the most part in the cortex and contained many bacilli.

Tubercles were also seen in the breast tissue.

A lymph node from the porta hepatis contained dilated sinuses stuffed to overflowing with large mononuclear cells. Germinal centers were not seen in the middle of the lymph nodules. Small tubercles composed almost entirely of epithelioid cells were found in the lymph sinuses.

Bacteriological examination.—Smears from lung and spleen scrapings stained by Ziehl's carbo-fuchsin showed many acid-fast bacilli. Some pieces of lung and spleen were ground up in a mortar and the resulting emulsion liberally smeared over the surface of several tubes of glycerinated Dorset's egg medium. At the end of three weeks a few tiny, dry, yellowish colonies made their appearance, especially in the neighborhood of small fragments of tissue adhering to the surface of the slants.

The second generation developed slowly and two of six tubes failed to show any growth at the end of four weeks. Cultures of the third transplants were more eugonic and after six weeks there was ample material for animal inoculation. Smears of the third generation showed long slender acid-fast bacilli.

Two adult rabbits injected with 0.1 milligram of the culture, one intraperitoneally, the other subcutaneously in the groin, remained alive after 50 days. At this time both were killed and each showed sparsely scattered gray tuberculous nodules in lungs, spleen and liver. As neither animal developed the progressively fatal tuberculosis seen after inoculation with a bovine strain, the organism isolated from this case was regarded as a human type of tubercle bacillus.

ANATOMICAL DIAGNOSIS

Primary.—Caseous tuberculous foci in upper lobes of each lung. Rupture of caseous mass

into branch of pulmonary vein, left upper lobe. Generalized exudative miliary tuberculosis. Splenomegaly with infarcts. Icterus. Enlargement of hepatic and biliary lymph nodes. Ascites.

Subsidiary.—Scar of old right rectus incision. Absence of appendix. Adhesions about cecum.

DISCUSSION

This is an interesting example of the manner in which a case of arrested tuberculosis, after a massive miliary dissemination, may suddenly terminate with many of the symptoms of a pyogenic infection. There was an old apical tuberculosis of both lungs consisting of caseous lesions that were neither calcified nor well encapsulated. All these foci showed signs of a progressive peripheral invasion of the surrounding lung tissue. The extension of one of these caseous lesions brought it into contact with a branch of the pulmonary vein and the combined effects of pressure and necrosis soon eroded the wall, opening up a channel from the soft bacillus-laden caseous mass in the lung to the lumen of the vessel. Through this erosion countless numbers of tubercle bacilli must suddenly have been discharged into the blood stream by way of the pulmonary vein, thence through the left heart to be disseminated throughout the entire systemic arterial circulation. Smaller numbers of organisms may have been swept into the circulation periodically subsequent to the first massive invasion for no thrombus was found in the ruptured vessel.

The conditions in this case are almost comparable to a deliberate laboratory experiment. The onset of the first symptoms indicates that the erosion into the pulmonary vein occurred about three weeks before death. Although no tuberculin test was made we may assume that an individual with such old caseous apical lesions in all probability had been well sensitized to the products of the tubercle bacillus. Thus the conditions closely simulate a massive intra-arterial injection of bacilli in an allergic animal three or four weeks before death. In this connection it is interesting to note that the structure and distribution of the tubercles in this case is just what would be encountered in an animal previously subjected to such an experiment.

In all the organs the tubercles are of the same kind. They consist merely of collections of cells, mostly mononuclears, a few polymorphonuclear leukocytes, some lymphocytes, but practically never contain a giant cell. Caseation or rather its earliest stage, necrosis of the central cells, begins almost as soon as the cells are grouped together in nodular masses. This is the typical soft exudative type of tubercle

found in highly allergic individuals and it is quite different from the usual older, hard, proliferative tubercle with concentric whorls of fibrous tissue and well formed giant cells. A few tubercles of this second type were present at the periphery of the old caseous foci in the apex but were encountered nowhere else.

The wholesale distribution of bacilli into the pulmonary vein, that occurred following the erosion of a caseous mass, accounts for the profusion of the tubercles in the liver, spleen, lungs and kidneys and the occasional ones encountered in pancreas, muscle and skin. The profound intoxication, not unlike typhoid, or some extensive pyogenic infection, is easily explained by the dissemination of poisons from the myriads of tubercle bacilli abounding in all these tubercles.

The jaundice was perhaps the most striking clinical feature of this case. Although its explanation cannot be categorically stated, two possible theories present themselves. Since the lymph nodes at the hilus of the liver were enlarged it seems possible that they exerted pressure on the common duct. Although rare, this condition is well recognized as a cause of obstructive jaundice. An autopsied case and a review of the literature has recently been reported by Jean.¹ Since in our case the enlarged lymph nodes did not give the appearance of blocking the duct and since by test the duct was demonstrably patent, it does not seem possible to establish obstruction as the cause of the icterus. The other hypothesis would explain the jaundice upon the presence of miliary tubercles in the liver lobules. Rolleston² considers this to be an extremely rare association. Fraenkel,³ however, in 1882, collected three cases one of which showed changes similar to those we have described. In none of Fraenkel's cases was there any evidence of blocking of the common bile duct. Warthin,⁴ in a later communication, considered the condition of jaundice in miliary tuberculosis not unusual and reported a case quite like that of our patient and mentioned several others which had been observed by him and his associates. In our patient, the extensive involvement of the lobules permits little doubt that it was responsible for the jaundice which may have been produced by pressure on the smaller bile ducts especially since most of the tubercles were distributed at the periphery of the lobules.

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THE MIDDLE AGES

"Medieval" and "The Middle Ages" are terms that we use in a more or less loose connotation. By them we designate a period in our civilization extending, roughly, from the final disintegration of the "Pax Romana," with the loss of all the old physical and mental achievements, down through centuries of disorder, in which the stabilizing elements wrought slowly to bring some order out of chaos, until after one or two False Dawns the new and abiding light broke in the minds of men with their rediscovery of the long-lost ancient world and their assimilation of the forgotten treasures of Greece and Rome. Modern scholarship has shown a new and remarkable interest in the Middle Ages. All this new interest must rebound to the benefit of the medical historian. Today, as never before, he has a chance to reach at first hand, accurate knowledge of many mediæval medical texts, to enter intelligently into the whole spiritual current of mediæval life, and to understand the place in it which his mediæval colleagues occupied. There are two characteristics of the Middle Ages that strike the most casual reader as he works his way through one treatise or "novel" or sermon after another. First, a childish simplicity, a happy credulity to which nothing is impossible if it be only presented by accepted authority, be that authority claimed by the most unlikely person to know anything about the matter in hand. And then there is a brutality—which is, however, not always coarse, but simply outspoken, and which one meets with so constantly in the satirical or parodistic literature. As the basis of all mediæval life was more or less religious, so medicine and religion were often indistinguishably mingled. In the Middle Ages, people took things very literally, if only those same things were said by those whose authority and knowledge were generally accepted. The Middle Ages had not only their general "practisours" but they had their "specialists" also. In surgery, for instance, there were certain men who were famed for their specialized knowledge and technic of one single operation. Naturally there were many quacks of the most preposterous kind. Leaders of mediæval thought, like John of Salisbury, who had studied in France and had some personal acquaintance with the great medical school of Montpellier, speak kindly of physicians, even though they cannot help giving them a friendly little dig of passing criticism. On the other hand, the great poet, Petrarch, had a bitter, abiding hatred for physicians. The ancient feud between surgeons and "Internal Medicine Men" was bitter enough in mediæval times; except that in those days the modern state of things was exactly reversed. In the Middle Ages the surgeon was not the dominating all-powerful figure that he is now. On the contrary, he was a very inferior personage, with whom the "real physician" had as little to do as he decently might. Scattered quotations and illustrations, taken here and there from unpublished manuscripts or mediæval texts, may give us some general conception of the atmosphere in which our mediæval colleagues lived. Until we get, however, the historical background of their lives, and have some conception of how their minds worked, we cannot rightly understand their attitude to purely medical problems.—*International Clinics*, December, 1927.

THE JOURNAL

OF THE

Missouri State Medical Association

APRIL, 1929

EDITORIALS

THE SEVENTY-SECOND ANNUAL MEETING

The 72d Annual Meeting of our Association which convenes at Springfield, May 13, 14, 15, 16, 1929, promises to be a highly satisfactory session. Undoubtedly there will be a large attendance at this session for Springfield is readily accessible by rail to nearly all sections of the state and several main highways afford excellent motor transportation. The Local Committee on Arrangements is endeavoring to anticipate all the needs of the visitors so as to make their sojourn in the "Queen City of the Ozarks" a pleasurable event.

The Program Committee has been overwhelmed with requests for the presentation of scientific papers and could not find room for all that were offered. By arranging for a night session of the scientific program on Tuesday and the usual night session on Wednesday, the Committee has made room for over fifty papers.

The grouping of subjects in symposiums having proved so popular and instructive in previous years the Committee has arranged for symposiums on Neurology, Obstetrics, Diseases of the Chest, and Fractures. In addition to this grouping of papers there will be a clinic on chest diseases on Wednesday afternoon. Part of Wednesday is set aside for the final meeting of the House of Delegates which offers an excellent opportunity to conduct a two hour clinic. The patients will be brought from the State Sanatorium at Mount Vernon and others will be supplied from the hospitals in Springfield.

Following the precedent established in the past several years the Program Committee has invited several distinguished members of the profession from other parts of the country to be our guests and deliver addresses and take part in the discussion of papers offered by our own members. Our guest speakers will bring us valuable information concerning their methods of treating the conditions they will discuss. The names of the visitors and the titles of their addresses follow:

Dr. Peter Bassoe, Chicago, "Our Present Knowledge of the Psychoneuroses, With Especial Reference to So-Called Neurasthenia."

Dr. Preston M. Hickey, Ann Arbor, Michigan, "Pulmonary Neoplasm."

Dr. H. E. Kleinschmidt, New York City, "Tuberculosis in Childhood."

Dr. James Stuart Pritchard, Battle Creek, Michigan, "Pain in Tuberculosis."

Dr. J. H. J. Upham, Columbus, "Fetal Liver Feeding in Aplastic Anemia."

Dr. Philip D. Wilson, Boston, "General Considerations of Treatment of Fractures."

The delegates are reminded that the House of Delegates will hold its first session on Monday morning, May 13, and remain in session all day. The Council will meet immediately after lunch on Monday during the interval between the sessions of the House of Delegates. All meetings will be held in the roof garden of the Kentwood Arms Hotel.

HOTELS AND RATES AT SPRINGFIELD

Members are urged to make hotel reservations in advance of the date of the Annual Meeting so they can secure their rooms as soon as they arrive at Springfield. Reservations should be made direct with the hotels. The Committee on Hotels, however, will be ready to assist any member who is unable to make satisfactory reservations direct. The names of the hotels and rates follow:

HOTEL RATES FOR THE SPRINGFIELD MEETING

Hotels	Single Without Bath	Single With Bath	Double Without Bath	Double With Bath
Kentwood Arms (Headquarters)		\$2.50 up	Suites	\$4.00 up
Ben Franklin ...		1.50		2.50
Colonial	1.50	2.50	2.50	4.00
Frederick	1.00	1.50	2.00	2.50
Ozark		2.00 up		3.00 up
LaFayette	1.25	1.50	2.00	2.25
Marquette		1.50		2.50
Reams	1.50	2.00	2.50	3.00
Savoy	1.50	2.00	2.50	3.00

STATUS OF BILLS IN THE LEGISLATURE

The bills in the present session of the legislature which have attracted the attention of our Association have made little progress during the month. A new bill however introduced by Senator Hildreth, the osteopath from Macon, is an extremely obnoxious measure. This bill amends the osteopathic law so as to provide that osteopathic physicians "shall be entitled to use narcotics in the practice of their 'profession.'" This is Senate Bill No. 615 and House Bill No. 660 introduced in the House by Mr. Fowler, of Kirksville. It is an attempt to give osteopaths by legislative enactment the right to use the most powerful and most dangerous drugs in the pharmacopeia without requiring them to have any knowledge concerning their

actions or therapeutic uses, since the teaching of *materia medica* and therapeutics has no place in the curriculum of the American School of Osteopathy at Kirksville. Having designated their system of healing as a "profession" our legislative committee prepared an amendment to the Bill for the purpose of defining osteopathy. The amendment reads:

"Osteopathy within the meaning of this act, and within the meaning of Chapter 79, Revised Statutes of Missouri, 1919, and amendments thereto, is hereby defined as a system of treatment of human ills based upon the theory that diseases are due to deranged mechanism of the bones, nerves, blood vessels, and other tissues of the human body, and can be remedied by manipulation of these parts by the human hand, and excludes the treatment of diseases of the human body by the use of any drugs or medicines, externally or internally administered, and the practice of surgery upon the human body."

In the House of Representatives the Committee on Public Health declined to accept the amendment and reported the Bill out "without recommendation." In the Senate the Bill is still in the Committee on Eleemosynary Institutions.

Until last October osteopaths were licensed by the Federal Bureau of Narcotics to prescribe these drugs in Missouri but in that month Attorney-General Shartel rendered an opinion declaring that an osteopath is not permitted to prescribe or administer narcotic drugs in Missouri. This ruling caused the narcotic agents in Missouri to refuse further permits to osteopaths and prompted them to institute a mandamus suit in the federal court at Kansas City to compel the narcotic agent at that point to issue permits to osteopaths. Until the court rules on this case it is probable that the privilege will be withheld. Being thus suddenly deprived of the right to use narcotics in their practice and the court not yet having rendered an opinion on the case before it, the osteopaths now petition the legislature to clothe them with the right to use a drug concerning which their own school gives no instruction.

Numerous court decisions make it apparent that osteopathy is generally regarded as a system of treating disease without the use of drugs and that it is a method limited to the manipulation of the human body by the hand only; that an osteopath would have no defense if he gave or prescribed medicine.

The Bill to create a department of mental diseases (H. B. No. 555) is making good progress. It has been engrossed in the House and is on the calendar for final passage. If passed it will materially aid in abolishing the ignoble behavior of some physicians qualifying as experts in criminal cases where insanity is an issue.

The amendments to the Workmen's Compensation Act are having considerable trouble.

The Committee instead of approving the clause eliminating all reference to the amount of fees within the first sixty days has proposed an amendment increasing the amount from \$250 to \$500 and the period of time from sixty days to ninety days. The bill is still in the Committee. Our representatives have not abandoned hope of eliminating the clause entirely.

The bill to change the system of conducting inquests and to require a medical examiner to be attached to every coroner's office has made no progress. It is still in the Senate Committee.

Governor Caulfield's proposition for the legislature to give him authority to appoint a commission for conducting a survey of the state, educational, penal and eleemosynary institutions, the rural school system and the sources of revenue upon which they are dependent, met with almost universal approval in the House of Representatives when it was called up for engrossment. If this bill passes it will present an opportunity to impress upon the Governor and upon the legislature the need for a state general hospital and the reestablishment of the complete medical course at the State University. For twenty years the youth of Missouri who desired to study medicine in our State University have been compelled to complete the course at other institutions, for in 1909 the Missouri University abandoned the teaching of the clinical course and limited its instruction in medicine to the first two years.

If the bill passes in its present form it will give the Governor authority to appoint a commission of seven to serve without compensation in conducting a thorough survey of the institutional and departmental needs of the state and their sources of revenue, and to formulate a report which would be used as the basis of recommendations by the Governor to the next session of the legislature.

The commission must complete its work not later than November 30, 1929. An extra session of the legislature probably will be called in the event the bill becomes a law.

EARLY DIAGNOSIS OF TUBERCULOSIS

The second annual nation-wide campaign for early diagnosis of tuberculosis has been launched by the National Tuberculosis Association and 1500 affiliated local associations. The campaign, which will last through April, is being sponsored in St. Louis by the Advisory Medical Staff of the Tuberculosis and Health Society.

The campaign is being undertaken because, according to the National Tuberculosis Association, hope of ultimately conquering the disease

lies in the prompt discovery of all cases of tuberculosis before they have had opportunity to spread infection. Notwithstanding the success of the Early Diagnosis Campaign conducted last year, the association feels that many more years of education are necessary in combating tuberculosis.

Emphasis in the present campaign will be placed more definitely on the child, particularly the contact child, without relinquishing the appeal to older people. The campaign, which is built around its slogan "Early Discovery—Early Recovery. Let Your Doctor Decide," will gain in effectiveness if stress is laid on the protection of children.

Discovery in the incipient stage promises much; anticipating actual disease through the detection in childhood of infected lung glands, the danger signals that often foretell future disease, promises more. Yesterday it was enough to work for the achievement of the first; today we push the line of defense back to childhood. A long step forward in the control of tuberculosis will have been taken when parents become impressed with the significance of lung and gland tuberculosis, when general practitioners keep this condition constantly in mind, and when its importance is fully realized by those in charge of the health of children in schools.

Not that adults should be forgotten in the search for the child. It is from them, frequently, that the child becomes infected. But we must definitely expand our view of tuberculosis to include the possibility of the very early stage of the disease in children. We are face to face with the stern reality that finding tuberculosis even in the earliest stages of the lung itself is not enough—we must discover it in the antecedent condition during childhood before it becomes pulmonary tuberculosis at all.

Knowing this, we are no longer satisfied to say a child is underweight or undernourished or pre-tuberculous. Now it is possible, with the aid of the X-ray and the tuberculin test, to go beneath surface indications and determine with greater assurance than ever before that certain children are the individuals who are likely later to become active tuberculosis cases if nothing is done about it.

Talks, meetings, educational motion pictures, posters, and distribution of pamphlets are some of the means which will be used to stimulate interest in the movement for early diagnosis of tuberculosis. Although all medical, social and civic organizations are urged to participate in the movement, the cooperation of physicians is especially sought, as it is not unlikely that a considerable number of their own patients or others will come to them for physical examination.

Books for Leisure Moments

Elizabeth M. Sloan Chesser has written a book entitled "Child Health and Character" (Oxford University Press, New York), which should be in the possession of all mothers. It will aid in solving the problem of correct bringing up of children by the application of sound psychology and hygiene. It is an established fact that a knowledge of hygiene is the basis of health, so also in the study and application of psychology lies the great hope of increasing human happiness. Every child inherits primitive instincts and with them are linked powerful emotions that can make life beautiful or tragic. The character of our children depends to a great extent upon their control and sublimation. Therefore we see an increasing number of right thinking parents becoming interested in child psychology. We learn to watch for and encourage good impulses and carefully guide away from bad ones. The instinct of curiosity is one of the strongest characteristics of the young. Character is affected by our methods of dealing with this very natural instinct.

The chapter on "Infancy" is very interesting. It has been said that the first year of life is the most important from the viewpoint of health. As so much trouble is caused by digestive ills during the first year, the author discusses the two ailments that so often prove fatal to the infant, namely, diarrhea and constipation. Suggestion we know, is a terrible force and can be an extraordinary power for good or evil in the life of the young child. Never let a child discover that he can have his own way by making himself disagreeable. Good habits of thought and conduct must be encouraged by the mother, not by direct suggestion but by discouragement of selfishness and wrong tendencies and encouragement of happy conduct.

In the chapters on "Child Psychology" and the "Study of Character" we find much helpful information. The one reason why psychology is so important a subject to nurses and parents is because it enables us to learn how to manage children. A well trained child produces a right thinking adult. We have come to believe nowadays that children must be made good, not through fear but by making them realize and learn for themselves that happiness is won by experiencing and following right desires and by developing the social sense. Our criticisms and corrections of the child should always be tempered with sympathy and understanding. We find the study of character is particularly interesting. A child's character is influenced, apart from his inherited instincts, by his physical condition and his environment. L. C.

"The Infant and Young Child" is a book written by three Harvard teachers, Drs. Morse, Wyman and Hill (W. B. Saunders Company, Philadelphia and London), all of whom have specialized in the care of children. There is much information in the book of value to mothers and especially to young mothers, telling them what modern medicine and modern hygiene can do to keep children healthy. The authors solve the problems and dispel the worries of mothers by directing them in plain, common sense methods. Mothers are advised concerning the complete care of the child from birth to the age of six years.

The book is written in plain language and is one that mothers can use because the advice given them in the matter of caring for their children can easily be understood. L. C.

NEWS NOTES

Dr. E. H. Coon, first assistant superintendent of State Hospital No. 3, Nevada, has been appointed superintendent of the institution to succeed Dr. J. H. Parker.

Dr. John F. Chandler, Oregon, has been appointed by the Holt County Court as part time deputy state commissioner of health and county physician for a period of three years, beginning March 1, 1929.

Dr. Augustus G. Pohlman, director of the department of anatomy of the St. Louis University, has been invited to become a member of the Collegium-Otorhino-Laryngologium, an international organization membership in which is limited to ten members from each county.

The American Proctologic Society will hold its next annual meeting in Detroit, May 13, 14, 15, 1929. The Hotel Statler will be headquarters for the scientific program and the scientific and commercial exhibits. Dr. Edward G. Martin, Detroit, is president, and Dr. Walter A. Dansler, Minneapolis, is secretary.

An ear, nose and throat postgraduate course including surgery of the ear, nose and throat, transmaxillary and plastic surgery, and bronchoscopy, will be given at the University of Bordeaux, France, commencing July 22, 1929. Physicians interested in this course may address Dr. Leon Felderman, 413 Equitable Building, Philadelphia.

Dr. Ernest Von Quast, Kansas City, celebrated the fifty-second anniversary of his medical practice on March 7, 1929. Dr. Von Quast

is seventy-five years old but is still vigorous and in active practice.

The county court of St. Louis County has appointed Dr. Louis C. Obrock as county health commissioner to succeed Dr. A. E. Walters. Dr. Obrock was endorsed for the position by the St. Louis County Medical Society.

Dr. Francis M. Pottenger, Monrovia, California, was the guest of the Jackson County Medical Society at Kansas City, Tuesday, March 26, 1929. In the morning he conducted a clinic on pulmonary tuberculosis at the Kansas City General Hospital through the courtesy of Dr. Porter E. Williams, superintendent, and under the sponsorship of Dr. Sam H. Snider. At noon he addressed the junior and senior students of the University of Kansas Medical School. In the evening he gave a lecture in the auditorium of the Society on "Disturbances of the Vegetative System in Visceral Disease," illustrated with lantern slides.

The United States Civil Service Commission announces open competitive examinations for associate medical officer and assistant medical officer. Applications must be on file with the Commission at Washington, D. C., not later than June 29. The examinations are to fill vacancies in hospitals of the Public Health Service, the Indian Service, and in other establishments of the federal classified service. Competitors will not be required to report for examination at any place but will be rated on their education, training and experience. Papers will be rated as received and certification made as the needs of the service require. Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the secretary of the Civil Service Board at the post-office or custom-house in any city.

Members who are interested in neurology and psychiatry are invited to communicate with Dr. L. B. Alford, 401 Beaumont Medical Building, St. Louis, and express their opinion on the probable profit of forming a society of psychiatrists to meet for one session during the Annual Meeting of the State Medical Association. This suggestion has been made and Dr. Alford is willing to make the arrangements for a meeting at Springfield if a sufficient number of members indicate their interest in the proposal. It has been suggested that those members who are attached to state hospitals and those who have served as physicians and superintendents at the state hospitals, in conjunction with neurologists and psychiatrists in private

practice, might find such an annual gathering profitable to them and at the same time not conflict with the meetings of the State Medical Association.

The Annual Meeting of the Mid-West Hospital Association, composed of the Kansas, Missouri and Oklahoma Hospital Associations, was held at Hotel Baltimore, Kansas City, Friday and Saturday, February 22 and 23, 1929. Dr. B. A. Wilkes, president, presided. Hospital representatives from Iowa, Nebraska and Colorado were present by invitation. Problems relating to the business, administrative and professional sides of hospital work constituted the program. The exhibit consisted of a full display of the highest type of hospital equipment and supplies. Among the hospital administrators from Missouri on the program were: Dr. B. A. Wilkes, St. Louis, president of the Hospital Association and superintendent of the Missouri Baptist Hospital; Dr. L. H. Burlingham, St. Louis, president of the American Hospital Association and superintendent of Barnes Hospital; Dr. W. L. Brandon, Poplar Bluff, superintendent of Brandon Hospital; Dr. Porter E. Williams, Kansas City, superintendent of Kansas City General Hospital; Dr. Rush E. Castelaw, Kansas City, superintendent of Wesley Hospital; Miss E. Muriel Anscombe, St. Louis, superintendent of Jewish Hospital; Miss Cordele Ranz, Mexico, superintendent of Audrain County Hospital; Reverend O. J. Carder, St. Joseph, superintendent of Missouri Methodist Hospital. Father Alphonse M. Schwitalla, Dean of St. Louis University School of Medicine, was one of the speakers at the dinner given at Hotel Baltimore Friday evening.

The following articles have been accepted for New and Nonofficial Remedies:

E. Billhuber, Inc.

Lenigallol

Ciba Co., Inc.

Dial—Ciba

Tablets Dial—Ciba, 0.1 Gm. (1½ grains)

Elixir Dial—Ciba

OBITUARY

HORINE MILES, M.D.

WEBSTER GROVES, MO.

1864-1929

Dr. Horine Miles, Webster Groves, a graduate of Missouri Medical College (now Washington University School of Medicine), St. Louis, 1886, died at St. Luke's Hospital, St. Louis, January 17, 1929, after a brief illness of



HORINE MILES, M.D.

peritonitis resulting from an infection of the intestine, aged 64.

We of the profession truly regret the passing of one of our fellows, Dr. Horine Miles. He was born October 16, 1864, in Carondelet (St. Louis), the son of Stephan and Elizabeth Miles, pioneer land owners of Illinois. He graduated from high school receiving high honors as a Latin student, and at the age of twenty-two years received his medical diploma. In 1890 he married Miss Ida L. Peck, St. Louis. Two sons and one daughter, Mrs. Albert H. Bailey, Webster Groves, were born of this marriage. The sons died in infancy. He practiced at Hecker and Fountain, Illinois, for four years, moving to Webster Groves in 1890 where he practiced for thirty-eight years. He was a conscientious worker and devoted his life to his profession. He did his duty as he saw it, never pausing to safeguard his own health, and in the end he paid the supreme sacrifice. One seemed to think of him as always young and active, ready at all times to lend himself to a worthy cause, generous, cheerful, a friend to those in distress. He made no distinction as to race, color, or creed. He was loved by many and his memory will live long in their hearts. His was the soul of a genius. He was talented in many ways. He had a natural gift for music, was especially fond of playing the violin and piano. Art and poetry were also in his make-up. He was a man of tact and ability, a master of himself and emotions.

Dr. Miles was one of the members of the St. Louis County Medical Society and a Fellow of the American Medical Association. He was alternate delegate to the State Association

meetings in 1925, 1926 and 1928. He leaves a wife, Mrs. Ida L. Miles; one daughter, Mrs. Albert H. Bailey; two grandsons, Miles and David Bailey; two brothers, Stephan and Edward Miles, and one sister, Mrs. L. N. Dugan.

GARNETT JONES, M.D.

RESOLUTIONS ADOPTED BY ST. LOUIS COUNTY
MEDICAL SOCIETY

WHEREAS, The Almighty in His infinite wisdom has called from this fraternity our beloved confrere and friend, Dr. Horine Miles, and

WHEREAS, Through the years of his service as an active member we were helped and assisted in the furtherance of our study and profession, and

WHEREAS, By his going we feel the loss of his association and untiring devotion in the work of this Society, therefore be it

Resolved, That the St. Louis County Medical Society express its deepest regrets and sympathy to his widow and children, and that a copy of this resolution be sent to them and be spread on our minutes for a permanent record.

F. P. KNABB, Chairman.

R. E. GASTON

GARNETT JONES

Necrology Committee.

LAWRENCE THUMSER, M.D.

Dr. Lawrence Thumser, St. Louis, a graduate of the University of Prague Medical School, Austria, 1891, died at his home January 26, 1929, of pneumonia.

Dr. Thumser was born in Austria in 1866. Following his graduation he came to St. Louis and practiced for three years. In 1894 he returned to Austria and married. He later returned to St. Louis where he practiced until his death. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association. He is survived by his widow and two sons.

JOHN M. PAGE, M.D.

Dr. John M. Page, Puxico, a graduate of St. Louis College of Physicians and Surgeons, 1909, died at a Poplar Bluff hospital, February 9, 1929, after a short illness of pneumonia, aged 46.

Dr. Page was born March 12, 1883, at Asherville, Missouri, and received his preliminary education at the Southeast Missouri State Teachers College at Cape Girardeau. He had practiced in Puxico ever since his graduation. He was a member of the Stoddard County Medical Society, having served as vice president in 1922-1923.

LOUIS THEODORE RIESMEYER, M.D.

Dr. Louis T. Riesmeyer, St. Louis, a graduate of Missouri Medical College (now Washington University School of Medicine), St. Louis, died at his home February 15, 1929, aged 72. He had been in ill health since he suffered a nervous breakdown four years ago.

Dr. Riesmeyer, a native of Germany, practiced in St. Louis for thirty-five years. He was elected an Honor Member of the St. Louis Medical Society in 1923. He is survived by his widow, Mrs. Marguerite Riesmeyer.

JOHN WILLIAM WILLIAMS, M.D.

Dr. John W. Williams, Springfield, a graduate of Emory University School of Medicine, Atlanta, 1877, died at El Paso, Texas, December 22, 1928.

Dr. Williams was a member of the Greene County Medical Society and a Fellow of the American Medical Association. Previous to locating at Springfield he practiced at Farmington and Kingston, New Mexico, for five

ROBERT L. HAMILTON, M.D.

Dr. Robert L. Hamilton, Richmond, a graduate of Marion-Sims College of Medicine (now St. Louis University School of Medicine), St. Louis, 1891, died January 24, 1929, at St. Joseph's Hospital, Kansas City, after an illness of a chronic heart ailment, aged 62.

Dr. Hamilton, who was in his fortieth year of practice at Richmond, was well known among the medical profession of the state. He served as secretary of the Ray County Medical Society from 1923 to 1927, and delegate to the State Meetings from 1923 to 1928. He was active in state and national politics, having been a delegate to the National Convention in Denver when William Jennings Bryan was nominated for president. In the same year he was a member of the committee which notified the vice presidential candidate of his nomination.

Surviving are his widow; one son, Arthur Hamilton; one sister, Mrs. George Hunt, Richmond; two cousins, Drs. Eugene and Buford Hamilton, of Kansas City.

SAMUEL VAN HOEFEN, M.D.

Dr. Samuel Van Hoefen, St. Louis, a graduate of the University of Munich, 1873, died at San Diego, California, March 2, 1929, of infirmities of old age, aged 79.

Dr. Van Hoefen was born on the Isle of Borneo, Dutch East India, in November, 1849, of parents who were members of an old Dutch colony. He received his early education in Holland and later at the University of Heidelberg, Germany. One year after receiving his medical diploma he came to St. Louis where he practiced continuously until the death of his wife in 1927, when he moved to California. He manifested an unusual interest in the study of native Missouri plants and flowers, and it is said he owned the most extensive collection of works on botany west of the Mississippi for many years. He also did research work in medicine. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

Surviving are four children: Dr. S. A. Van Hoefen, Roland Van Hoefen, an attorney, Mrs. Hattie Greer and Mrs. P. J. McGuire.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
FOR 1929(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.

Ralls County Medical Society, December 17, 1928.

Chariton County Medical Society, December 28, 1928.

Mercer County Medical Society, January 2, 1929.

Camden County Medical Society, January 11, 1929.

Benton County Medical Society, February 13, 1929.

MISSOURI STATE MEDICAL ASSOCIATION
72D ANNUAL SESSION

Springfield, May 13, 14, 15, 16, 1929

PRELIMINARY PROGRAM

Guests

Bassoe, Peter, Chicago: Our Present Knowledge of the Psychoneuroses, With Especial Reference to So-Called Neurasthenia.

Hickey, Preston M., Ann Arbor, Mich.: Pulmonary Neoplasm.

Kleinschmidt, H. E., New York City: Tuberculosis in Childhood.

Pritchard, James Stuart, Battle Creek, Mich.: Relation of Pain to Tuberculosis.

Upham, J. H. J., Columbus, Ohio: Fetal Liver Feeding in Aplastic Anemia.

Wilson, Philip D., Boston: General Considerations of Treatment of Fractures.

Symposiums

Symposium on Fractures:

Blair, Vilray P., St. Louis: Fractures of the Jaw.

Diveley, Rex L., Kansas City: Fractures of the Upper Extremity.

Hess, H. Lewis, Kansas City: Fractures of the Lower Extremity.

O'Reilly, Archer, St. Louis: Fractures of the Spine.

Wilson, Philip D., Boston: General Considerations of Treatment of Fractures.

Discussion to be opened by Dr. P. M. Hickey, Ann Arbor, Mich., Dr. LeRoy Abbott, St. Louis, and Dr. Robert M. Schauffler, Kansas City.

Symposium on Neurology:

Gibson, E. T., Kansas City: Sequellae of Acute Infectious Diseases.

Robinson, G. Wilse, Kansas City: Sequellae of Encephalitis.

Carr, A. D., St. Louis: Modern Methods of Treatment in Neurosyphilis.

Satterfield, Val B., St. Louis: Differential Diagnosis of Common Mental Diseases.

Symposium on Obstetrics:

Krebs, Otto, St. Louis: Control of Pain in Childbirth by the Morphin-Scopolamin Method.

White, E. C., Kansas City: Control of Pain in Childbirth by the Gwathmey Method.

Singleton, J. Milton, Kansas City: Control of Pain in Childbirth by Other Methods.

James, Joseph D., Springfield: Postpartum and Postnatal Care.

Clapper, W. L., St. Louis: Management of Difficult Head Presentation.

Discussion to be opened by Dr. U. J. Busick, Springfield.

Symposium on Chest Diseases:

Bryan, W. J., Mt. Vernon: Nontuberculous Conditions Which Simulate Tuberculosis.

Graham, Evarts A., St. Louis: The Surgery of Pulmonary Tuberculosis.

Pritchard, James Stuart, Battle Creek, Mich.: Relation of Pain to Tuberculosis.

Hickey, P. M., Ann Arbor, Mich.: Pulmonary Neoplasm.

Scientific Papers

Battersby, R. S., Columbia: Early Diagnosis of Tuberculosis in Children.

Clendenning, Logan, Kansas City: Syndrome of Intra-peritoneal Hemorrhage.

Clopton, M. B., St. Louis: Management of Peptic Ulcer From the Viewpoint of the Surgeon.

Eyermaun, Chas. H., St. Louis: Causes of Failure in the Treatment of Allergy.

Falk, O. P. J., St. Louis: Influence of Etiology on the Prognosis of Heart Disease.

Gilliland, O. S., Kansas City: Diagnosis and Treatment of Maxillary Sinus Disease.

Ginsberg, A. Morris, Kansas City: Fatal Hemorrhage From Mitral Stenosis; Report of Two Cases.

Gorham, Frank D., St. Louis: Management of Peptic Ulcer From the Viewpoint of the Internist.

Gradwohl, R. B. H., St. Louis: The Schilling Differential Blood Count With Reference to Diagnosis and Prognosis.

Grindon, Joseph, St. Louis: Feigned Eruptions.

Helwig, F. C., Kansas City: Malta Fever.

H'Doubler, F. T., Springfield: Goiter Surgery as Encountered in Patients From the Ozark Region.

Hyland, Robert F., St. Louis: Present Status of Injection Treatment of Varicose Veins.

Jones, A. B., Kansas City: Agranulocytic Angina With a Recovery.

Luton, Sinclair, St. Louis: Treatment of Chronic Heart Disease.

McCutchen, L. G., St. Louis: Diagnosis of Abdominal Tumors With the X-Ray After the Administration of Opaque Media; Illustrated With Lantern Slides.

McGinnis, B. J., and Glenn, E. E., Mt. Vernon: The Treatment of Laryngeal Tuberculosis.

McMahon, Alphonse, St. Louis: Basal Metabolism in Pulmonary Tuberculosis.

Moore, Neil S., St. Louis: Further Observations on Non-Calculus Obstructions of the Ureter.

Pfingsten, C. F., St. Louis: Comparative Study of Coalescent Mastoiditis and Hemorrhagic Mastoiditis.

Potter, Caryl, St. Joseph: Closure Without Drainage.

Reder, F., St. Louis: Some of the Causes of Death Following Operations for Appendicitis.

Robnett, Dudley A., Columbia: The Uterine Curettage as a Diagnostic Procedure.

Schisler, E. J., St. Louis: Aneurysm of the Aorta; Verification of Diagnosis.

Sophian, A., Kansas City: Meningitis.

Stevens, R. U., Kansas City: Uterine Retrodis-

placement and Its Incident Pathology; Illustrated With Lantern Slides.

Tainter, Frank J., St. Louis: Primary Plastic Reconstruction of Lower Lip Following Extensive Removal for Carcinoma; Illustrated With Lantern Slides.

Thierry, Charles W., Jr., St. Louis: Medico-Social Aspects.

Wallace, C. H., Jr., St. Joseph: Observations on Spinal Anesthesia; Report of Five Hundred Cases.

Welch, Albert S., Kansas City: Pulmonary Lesions Secondary to Dental Infection; Illustrated With Lantern Slides.

COOPER COUNTY MEDICAL SOCIETY

At the January 31, 1929, meeting of the Cooper County Medical Society held at the St. Joseph's Hospital, Boonville, the following officers were elected for 1929: President, Dr. R. L. Evans, Boonville; vice president, Dr. G. A. Russell, Boonville; secretary-treasurer, Dr. T. C. Beckett, Boonville; delegate, Dr. W. E. Stone, Boonville; alternate, Dr. T. C. Beckett, Boonville.

Drs. A. W. Nelson, Boonville, and O. W. Cochran, Boonville, were continued as honorary members.

T. C. BECKETT, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met with the Southwest District Dental Society at a banquet at the Connor Hotel, February 12, 1929, at 6 p. m.

After the banquet all business was dispensed with and the evening was turned over to the essayist, Dr. Russell L. Haden, Kansas City, who spoke on "The Role of Dental Infections in Systemic Disease." Dr. Haden presented the subject in a very clear and concise manner, reporting his findings in research work and illustrating the X-ray findings and the gross pathology of the different organs with lantern slides. In closing, Dr. Haden stressed the point that all diseases cannot be cured by removing infected teeth but that certain conditions can be cleared up by this procedure.

The lecture was thoroughly enjoyed by all present and was freely discussed by both the physicians and the dentists.

The meeting adjourned at a late hour.

Meeting of February 19, 1929

The Society met in regular session at 8 p. m. at the Joplin Y. M. C. A., with Dr. Roy E. Myers, Joplin, vice president, in the chair. There were eight members present. The minutes of the last two meetings were read and approved.

Communications were read from Congressman Joseph J. Manlove in reply to our letter regarding the Newton Bill.

Dr. S. H. Miller, Joplin, reported a severe case of "Hemorrhagic Purpura" which was freely discussed.

Dr. W. S. Loveland, Joplin, reported several cases of certain skin conditions in which the findings were obscure, but in which the principal complaint was an intense itching.

Meeting of February 26, 1929

The Society met at 8 p. m. at the Joplin Y. M. C. A., with Dr. E. D. Hatcher, Carthage, president, in the chair. Nineteen members were present. The minutes of the last meeting were read and approved.

Dr. James B. Weaver, Kansas City, was introduced and read a very interesting paper on "The

Management of Fractures of the Neck of the Femur." Dr. Weaver thoroughly outlined the use of Whitman's method in treating this class of fractures and reported good results.

Dr. Earl C. Padgett, Kansas City, talked on "The Correction of Deformities Due to Burns," and illustrated his talk with lantern slides. Dr. Padgett uses the full skin grafts and described the manner in which they are used. He talked on the repair of contractures, repair of the nose and on the other uses of the full skin graft.

Meeting of March 5, 1929

The Society met in regular session at 8 p. m. in the Joplin Y. M. C. A., Dr. E. D. Hatcher, Carthage, president, presiding. The minutes of the last regular meeting were read and approved.

The committee appointed January 29 to investigate the full time public health officer recommended that no action be taken on this matter at the present time. The committee's report was accepted. It was moved and seconded that the Society shall not indorse the public health unit. After much discussion the motion carried, fifteen for and three against, and the secretary was instructed to write the secretary of the State Board of Health of this action.

On motion, seconded and carried, the secretary was instructed to purchase a view box for showing X-ray films.

Dr. Jesse E. Douglass, Webb City, gave an interesting talk on "Nontuberculous Hemorrhage of the Lungs." Dr. Douglass showed several films of tuberculous lungs, following the cases through to a cured condition. He also showed the films of a case of aortic aneurysm in which the main symptoms were pulmonary hemorrhage. He later did a postmortem and reported the findings.

Meeting of March 12, 1929

The Society met in regular session at the Joplin Y. M. C. A. at eight p. m. with the president, Dr. E. D. Hatcher, Carthage, in the chair. There were twenty-three members and fifteen visitors present. The minutes of the last meeting were read and approved.

The applications for membership of Drs. W. B. York, Sarcoxie, and Guy I. Meredith, Joplin, were read and referred to the board of censors.

The essayist of the evening was Dr. Robert M. Schaffler, Kansas City, who gave a very thorough paper on "Arthritis." Dr. Schaffler gave his classification of arthritis and pathology of the different forms, going into detail on the etiology and treatment of each form. His subject was thoroughly discussed.

H. L. WILBUR, M.D., Secretary.

THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of January 4, 1929

BONE TUMORS.—By DR. C. B. FRANCISCO.

Our chief clinical interest is not so much in the various types of bone tumors as in whether or not they are malignant.

Case 1. A man developed a tumor at the lower end of his radius five months after it had been injured in an automobile accident. X-ray treatment failed to relieve and resection was done. The pathologist's report was giant-cell tumor, probably malignant. After two years there has been no recurrence.

Case 2. A woman with a cystic phalangeal tumor. Dr. Bloodgood advised crushing. We amputated. The pathologist reported chondroma.

Case 3. A woman who had her breasts successively removed for carcinoma and a few years later developed a soft tissue tumor of the finger involving the subjacent bone by pressure. The pathologist's report was giant-cell sarcoma.

Case 4. Girl seventeen years old with tumor in the head of femur. Cultures were made at the time of operation, on the advice of D. B. Phemister, and streptococci obtained.

Case 5. A twenty-two year-old man with a tumor in the head of femur of many years duration. Femur was cleaned out and packed. The patient has remained symptom-free.

Case 6. A cystic tumor involving the entire head of the femur.

Case 7. Similar to Case 6. Tumor was crushed, and "currant jelly" material cleaned out.

Case 8. Similar to Case 7, the tumor developing about two years after an attack of scarlet fever.

These tumors were all benign. The next group were malignant.

Case 9. A woman whose breast was previously removed for cancer. There was focal decreased density of her lower lumbar vertebrae with displacements that suggested retroperitoneal sarcoma.

Case 10. A farmer whose lower vertebrae showed focal decreased density and who became anemic and died. The primary lesion was never found.

Case 11. A child whose knee was injured in a coasting accident. Sarcoma of the tibia developed. She refused amputation and died after thirteen years.

Case 12. A seventeen-year-old boy who developed a tumor of the ileum that was clinically and roentgenologically sarcoma. He died.

Case 13. A two and a half year old child with injury to knee. A cyst developed at the head of the tibia. In a brace, the X-ray shows that calcification is taking place.

I believe sarcoma may occur at any age, particularly in young individuals when they haven't the ability properly to repair bones that are injured. With a total fracture, the cell production stops after the formation of a callus; with slight injury, there seems to be continuous stimulation to cell production and a tumor results. As a rule, nonmalignant cases show a vast bony change out of all proportion to the clinical symptoms, while malignant cases have pain and anemia out of proportion to the slight findings by X-ray. Sometimes, I feel that biopsy should not be done but that it is better to rely more on the X-ray and on clinical symptoms.

DISCUSSION

DR. E. H. SKINNER: Instead of reading an X-ray film by saying "It looks like something I saw before," we attempt to analyze the shadows according to the following scheme: There are two main classes of bone change, (1) constructive processes and (2) destructive processes. The constructive processes occur in osteomyelitis and syphilis; the destructive processes in tuberculosis and malignancy. We approach the diagnostic problem by analysis rather than by comparison. In all malignant cases there is an "exvasion" i. e., the tumor breaks through the bone cortex. In primary tumors of the bone there are usually also some vertical lines of calcification not present in secondary tumors. If the secondary growth is from a prostatic tumor there is usually an osteoplastic process or throwing down of a line of defense, but if it is

from a breast tumor there is an osteoclastic process or widely disseminated vacuolization. In many respects cysts of the bone are similar to sterile dental apical granulomas.

DR. F. C. HELWIG: A conservative diagnosis should be made on the clinical, radiological, and histological evidence obtained in cases of bone tumor. I recently saw a patient who gained weight and was almost well for two years after curettage, and then had a recurrence. In my own experience, all tumors of the finger are benign. I have seen an exception to Dr. Skinner's statement, in which osteoclastic metastases occurred with carcinoma of the prostate gland. In recent literature there was a report of the isolation of amebae from cystic processes in the head of the humerus and the organisms were also found in the stools. There is nothing we know less about in pathology than bone tumor, with the possible exception of tumors of the lymph glands.

DR. FRANCISCO, in closing: A clinical feature in malignant disease of the spine is that immobilization does not relieve the symptoms as it does in most other conditions. If patients have a malignancy they will surely die from it sooner or later. Our chief concern, therefore, is not so much what type of malignancy exists but whether or not there is malignancy.

Meeting of February 1, 1929

INTERESTING CASES OF ANEMIA.—

By DR. R. L. HADEN.

Anemia may be classified according to underlying causes as follows: (1) From mechanical loss of blood; (2) hemolytic anemia; (3) from faulty bone marrow. Under the third division there are these subdivisions: (a) malignancy; (b) metabolic disturbances; (c) nutritional disturbances; (d) infection. Pernicious anemia is now considered a deficiency type of anemia.

Case 1. Woman, aged 44. Had anemia for many years. Resembled secondary type but possibility of early pernicious type was kept in mind. No free HCl in gastric contents. Put on routine treatment of HCl and iron. Focal infective lesions removed but showed no marked improvement. Given tincture of iodine when hemoglobin was 53 per cent. and 4,000,000 erythrocytes; after two months showed a hemoglobin of 87 per cent. and 4,700,000 erythrocytes. Six months later still had about 85 per cent. hemoglobin and 4,750,000 erythrocytes. Has been well ever since.

Case 2. Woman, aged 22. Tired easily; no free gastric HCl; hemoglobin 50 per cent. with 3,630,000 erythrocytes. Also secondary type that was possibly pernicious. Iron and other treatment given as in preceding case; blood findings not altered after four years.

She was also given iodine and in two months her blood revealed 81 per cent. hemoglobin with a corresponding increase in erythrocytes. She has learned by her symptoms when to take the iodine and has continued in good health. Her mother died with a peculiar type of anemia.

Case 3. Woman, aged 25. Suffered with menorrhagia and showed hemoglobin of 53 per cent. No free gastric HCl. Small uterine fibroid removed. Was put on iodine before the tumor was removed and her hemoglobin went to 70 per cent; it is now 90 per cent. Her mother had pernicious anemia which responded to specific therapy.

Case 4. Woman, aged 39. Had menorrhagia but no pelvic lesion was found. Had small nodule in

thyroid gland. No free gastric HCl. Hemoglobin 50 per cent. and 3,020,000 erythrocytes. After two months' treatment with iodine she had 95 per cent. hemoglobin, 5,000,000 erythrocytes, and decreased menorrhagia.

Case 5. Woman, aged 23. Had menorrhagia for ten years. Pelvic examination negative. Had 30 per cent. hemoglobin and 2,000,000 erythrocytes. After some time on iodine, hemoglobin mounted to 65 per cent. and erythrocytes to 4,000,000. She has had normal menstruation since.

In these cases I feel that the absence of gastric hydrochloric acid is a factor in the production of the anemia and that they belong in the group of faulty bone marrow. Possibly thyroid disturbances entered, but some of these patients had a positive and some a negative basal metabolic rate. In two of the cases heredity may have been a factor. These are all probably a type of deficiency disease in which there is iodine deficiency. Many investigators are now finding that lack of inorganic salts plays some part in the anemias of experimental animals.

DISCUSSION

DR. RALPH MAJOR: May not some of these patients have had chlorosis? Have you tried any other inorganic substances in treatment?

DR. P. T. BOHAN: Dr. Haden's conception of a menorrhagia secondary to anemia is an interesting point of view. I believe that the achlorhydria is usually secondary to the anemia. A specific response to iodine therapy in these patients would suggest to me an endocrine disturbance. I use iodine at the menopause and get better results than I do with the glandular products.

DR. PIERCE: Did you try histamin on any of them?

DR. E. T. JOHNSON: Would the other halogens have a similar effect?

DR. ALBERT S. WELCH: Did any of these patients live on the sea coast where they could have taken food rich in iodine? Were stool examinations for parasites made in each one? Was a Wassermann run on each? Can any one of them get along for longer than a year without iodine and without anemia? Has similar work been done by other investigators? What was the original basis Dr. Haden had for giving iodine?

DR. A. J. WELCH: Many patients with anemia respond satisfactorily to Bland's pills, arsenic, rest and good food, and those with menorrhagia also improve under such treatment.

DR. HADEN, in closing: Chlorosis was ruled out by the color and volume indices being one, and by failure to respond to iron therapy. I believe achlorhydria is a necessary factor in this type of anemia because one of these patients always did have and still has an achlorhydria. We did not try histamin. We could not give the other halogens, bromine or chlorine, in a free state as we gave iodine. None of these patients lived on the sea coast; no parasites were found in the stools; all had negative Wassermann. I know of no other investigator who has done similar work. The original basis for iodine therapy was that pernicious anemia is a hemolytic disease of gastro-intestinal origin, in which there was excess unsaturated fatty acids. Fatty acids can be saturated with iodine.

TRAUMATIC RUPTURE OF THE INTESTINE.—By Dr. J. G. MONTGOMERY.

Of all cases recorded, 33 1/3 per cent. are due to kicks. The fixed portion of the intestine is most

often injured and the mortality is high because of obscure early symptoms, lack of external visible bruises and, often, lack of shock. A rigid abdomen with a history of being violently struck indicates immediate operation. There is 100 per cent. mortality with expectant treatment and about 33 1/4 per cent. mortality if operation is performed. The mortality is directly proportional to the time elapsing between injury and operation. At operation care should be taken that a vascular injury in the mesentery is not overlooked or a blow-out of the bowel wall opposite the mesentery may occur several days after operation.

Characteristic symptoms of traumatic rupture are pain, shock, vomiting, tender, rigid abdomen, absent peristaltic sounds, increased pulse rate, and facies abdominalis.

Case 1. Boy, aged 12. Was kicked by horse. Walked into hospital next day. Pulse 92, respiration 28, temperature 100.6 degrees, leukocyte count 21,150. Vomited continuously and abdomen was extremely rigid. At operation free bile was found in the peritoneal cavity and there were two perforated regions in the jejunum. The peritoneal cavity was cleaned by suction, drained and the perforations closed. Patient was dismissed after twenty days.

Case 2. Boy, aged 12. Fell on water hydrant. Came at once to hospital in shock, vomiting bloody material. Leukocyte count 26,000. At operation the peritoneal cavity was found full of food and blood. There were three lacerations in the stomach wall. These were repaired and the peritoneal cavity cleaned out, but the patient died with general peritonitis within three days.

DISCUSSION

DR. L. F. BARNEY: Other viscera are ruptured more often than the intestine. The first boy (Case 1), operated twenty-two hours after injury, got well, and the second (Case 2), operated within four hours after injury, died, showing that a lapse of time does not always mean that the patient will not recover. However, time is usually a very important factor.

DR. JAS. R. McVAY: It is an interesting fact that percussion is the commonest cause of injuries of this type. I recall two boys who were very sick after wagon wheels had passed over them, but who recovered without operative interference. However, Dr. Mayo has intimated that no one was ever killed by an early exploratory operation, but many have died because it was done too late.

DR. MONTGOMERY, in closing: It is true that the large viscera, the liver, spleen, a big ovarian cyst or distended stomach are more commonly injured, but with even such severe injury there may be few symptoms until peritonitis occurs, and then the mortality is very high.

ANOXEMIA AND ITS CLINICAL SEQUENCES.—By PROFESSOR C. F. NELSON.

Everyone dies of anoxemia. The energy of life is, strictly speaking, locked up in the oxygen molecule. Medicine is moving toward the chemical field and on beyond into the biophysical field, hence the presentation of this subject at this time.

The tissues generally suffer more from lack of oxygen tension than from lack of oxygen supply. This explains why inhalations of oxygen under tension give greater relief in pneumonia than simple increased respiration. The oxygen saturation of the blood can be measured by determining the compo-

sition of alveolar air as well as by examination of the arterial blood.

Types of anoxemia: (1) Anoxic anoxemia, which occurs in rarefied air or with fibrin-thickened lungs; (2) anemic anoxemia, with low available hemoglobin, as in carbon monoxid poisoning; (3) stagnant anoxemia, in which there is a slowed circulation, for example in decompensated heart conditions.

Anoxemia may be acute or chronic. The symptoms of acute anoxemia are like those of intoxication. The symptoms of chronic anoxemia resemble fatigue—any strain causes greater mental fatigue than ordinarily. The sequence of symptoms in aviators affected by anoxemia may be increased depth and frequency of respiration, Cheyne-Stokes' breathing, cyanosis, dulled intellect, impairment of muscular activity, emotional disturbances, progressive paralysis and finally unconsciousness. In mountain sickness there may be nausea and vomiting, headache, diarrhea, irregular temperature, irregularities in the heart beat, and great depression.

DISCUSSION

DR. R. L. HADEN: Do you do arterial puncture to make these determinations? We found in animals in which the venous blood oxygen had dropped to almost nothing that the arterial blood was 95 per cent. saturated, which was contrary to expectations.

DR. P. T. BOHAN: Is chronic anoxemia present in such conditions as diabetes, Bright's disease, arteriosclerosis and cancer? If it is, can these conditions be corrected by changing the oxygen pressure under which the individuals live?

DR. NELSON, in closing: We do not yet know the full meaning of anoxemia in clinical cases. Oxford and Cambridge physiologists are working today on the problem of anoxemia. It is not necessary in all cases to resort to arterial puncture. Estimation of the oxygen saturation of the blood may be made by analysis of the alveolar air.

Oxygen therapy is a fundamental and universal type of therapy. It holds promise of even greater success than radiation therapy.

PIKE COUNTY MEDICAL SOCIETY

The Pike County Medical Society met at the Pike County Hospital, Louisiana, Monday evening, February 4, 1929, with ten members present.

Dr. E. M. Bartlett, Clarksville, reported on the Marion County Medical Society meeting at Hannibal, February 1, 1929, when Dr. C. H. Neilson, St. Louis, gave a paper on "The Care of the Patient Before Operation." The main points in Dr. Neilson's talk were: (1) Force fluids, with or without glucose; (2) feeding, no cathartics; (3) intelligent anesthetizing; (4) psychological treatment.

Dr. R. L. Andrae, Louisiana, also discussed Dr. Neilson's paper.

A paper on "King George's Disease" by Dr. M. O. Biggs, Louisiana, was ably presented. Dr. Biggs opened his address by relating an amusing and interesting experience of how he received his fee for attendance on his first empyema case by giving the patient two baked apples. Eight other doctors on the case were forced to sue for their fees. Dr. Biggs stated that empyema was known in 1,500 B. C. and spoke of the method of treatment at that time, namely, exposing the patients on the roadside so that others with similar symptoms who had recovered might see, diagnose and prescribe. The

Egyptians did thoracentesis. Hippocrates, the Father of Medicine, made note of the splashing and metallic tinkle in these cases.

Dr. Biggs gave the age incidence as between twenty and forty, and mentioned three types: (1) Acute fibrinous pleurisy; (2) plural effusion; (3) empyema. He called attention to the fact that although pleurisy is usually secondary to lung conditions, it may be metastatic from distant focal infections. He advised rest, strapping and morphin, if necessary, fluids, catharsis, and the necessity of observing the patient for tuberculosis following recovery. Surgery was advised in all cases with effusion.

Dr. O. W. Snodgrass, Frankford, discussed Dr. Biggs' paper and stated that he belonged to the first class of two classes of people, "those who sit down and sit" and "those who git up and git." He advised remaining in bed, ventilation, strapping and surgery.

Dr. C. D. Scott, Louisiana, gave an excellent talk on "Middle Ear Infections" stating they are most frequently secondary to upper respiratory tract infections, and giving as the most frequent causes common colds, scarlatina, influenza, and measles. Children and young people are most frequently attacked. He said there are four types: (1) Acute tubotympanitis, wherein there is a slight swelling of the eustachian tube; (2) acute middle ear catarrh; (3) acute purulent otitis media; (4) chronic otitis media. Dr. Scott emphasized the importance of early recognition and nasopharyngeal treatment to abort early cases. He emphasized that bulging of the drum was a cardinal sign for paracentesis.

Dr. Robinson discussed middle ear infections and insisted that he had treated many cases, both surgically and nonsurgically, and that none was deaf. He recommended Borol as the best antiseptic, and advised lancing the tonsils and painting with tincture of iodine.

The time of meeting was changed from the first Monday to the first Tuesday evening of each month.

A letter from Dr. E. E. Edmondson, Carbondale, Illinois, was read and his offer to present a paper on "Hay-Fever" at the next meeting was unanimously accepted.

A vote of thanks was extended to the members of the hospital board for the excellent dinner at the last meeting and for their hearty cooperation.

E. A. CUNNINGHAM, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

A special meeting of the St. Louis County Medical Society was called February 6, 1929, by the president, Dr. A. W. Westrup, Webster Groves, concerning the appointment of a health commissioner for St. Louis County. The meeting was called to order at three p. m. in the First Congregational Church, Webster Groves.

On motion of Dr. W. F. O'Malley, Webster Groves, seconded by Dr. R. B. Denny, Creve Coeur, and carried, the Society endorsed Dr. L. C. Obrock, St. Louis, for health commissioner.

It was moved by Dr. C. P. Dyer, Webster Groves, seconded by Dr. O'Malley, that the Society meet with the St. Louis County Court at ten a. m., Monday, February 11, 1929, to present its candidate for health commissioner. Motion carried.

The following members were present: Drs. C. E. Colgate, H. N. Corley, C. P. Dyer, W. F. O'Malley and A. W. Westrup, of Webster Groves; Drs. E. O. Breckenridge, P. N. Davis

and E. E. Tremain, of Maplewood; Drs. J. H. Armstrong and R. H. Trumpour, of Kirkwood; Drs. Otto W. Koch and J. D. Stoelzle, of Clayton; Dr. R. B. Denny, Creve Coeur; Dr. O. N. Schudde, Ferguson; Dr. L. C. Obrock, St. Louis.

Meeting of February 13, 1929

The Society met in regular session in the First Congregational Church, Webster Groves, the meeting being called to order at three p. m. by the president, Dr. A. W. Westrup, Webster Groves. Members present: Drs. C. E. Colgate, H. N. Corley, C. P. Dyer, and A. W. Westrup, of Webster Groves; Dr. Frank P. Knabb, Valley Park; Dr. Otto W. Koch, Clayton; Dr. J. H. Armstrong, Kirkwood; Dr. O. N. Schudde, Ferguson; Dr. E. E. Tremain, Maplewood. Guests: Drs. J. P. Costello and L. C. Obrock, St. Louis; Dr. F. M. Grogan, Webster Groves.

The scientific program was given by Dr. Joseph P. Costello, St. Louis. His subject, "Atelectasis," was very interesting and instructive, and was thoroughly discussed.

The following resolutions of Dr. Horine Miles were read by Dr. Frank P. Knabb, Valley Park, and adopted:

WHEREAS, The Almighty in His infinite wisdom has called from this fraternity our beloved confere and friend, Dr. Horine Miles, and

WHEREAS, Through the years of his service as an active member we were helped and assisted in the furtherance of our study and profession, and

WHEREAS, By his going we feel the loss of his association and untiring devotion in the work of this Society, therefore be it

Resolved, That the St. Louis County Medical Society express its deepest regrets and sympathy to his widow and children, and that a copy of this resolution be sent to them and be spread on our minutes for a permanent record.

F. P. KNABB, Chairman
R. E. GIBSON
GARNETT JONES
Necrology Committee.

On motion of Dr. J. H. Armstrong, Kirkwood, seconded and carried, the members stood a few minutes with bowed heads in memory of Dr. Miles.

E. E. TREMAIN, M.D., Secretary.

ST. LOUIS MEDICAL SOCIETY

Meeting of January 22, 1929

The meeting was called to order at 8:35 p. m. by the president, Dr. Cleveland H. Shutt.

The program consisted of the following:

"The Present Status of Our Knowledge in Relation to the Etiology of Influenza," Dr. J. Bronfenbrenner.

"The Present Epidemic in St. Louis and Its Relation to Influenza," Dr. Lawrence D. Thompson.

"The Attitude of the United States Public Health Service Towards the Present Influenza Epidemic," Dr. F. H. McKeon, Surgeon U. S. Public Health Service.

Discussion by Drs. John Zahorsky, Edwin J. Schisler, George H. Mathae, Louis H. Behrens, Ralph A. Kinsella, Phelps G. Hurford, W. Antoine Hall, Amand Ravold; Drs. Thompson and McKeon closing.

A letter from the secretary of the Missouri State Medical Association relative to the Shepard-Towner-Newton Maternity Bill was read.

Dr. Edwin J. Schisler moved that the letter be received and that a wire be sent to the Committee on Interstate and Foreign Commerce, also to the local representatives and Missouri senators, stat-

ing that our Society goes on record opposing the bill.

Attendance 171.

Meeting of January 29, 1929

The meeting was called to order at 8:32 p. m. by the president, Dr. Cleveland H. Shutt.

The following scientific program was given:

"The Present Day Management and Treatment of Pneumonia," Dr. Llewellyn Sale.

"Diagnosis and Treatment of the Surgical Complications of Pneumonia," Dr. William T. Coughlin.

"Recent Advances in Serum Treatment of Lobar Pneumonia," Dr. Ralph A. Kinsella.

"Demonstration of Oxygen Tent," illustrated with lantern slides, Dr. Byron F. Francis.

Attendance 281.

Meeting of February 5, 1929

The meeting was called to order at 8:29 p. m. by the president, Dr. Cleveland H. Shutt.

The following specimens were presented by members of the staff of Christian Hospital: "Calcified Uterine Fibroid," Dr. G. A. Mellies. "Calcified Uterus," Dr. H. C. Herrick. "Calcified Ovary," Dr. T. R. Ayars.

The regular scientific program was as follows:

"Demonstration of Cinematograph Film of Living Tissues and the Effect of Radium Radiation on the Cells." This film was produced by Dr. Ronald George Canti, of London, and introduced by Dr. Edwin C. Ernst. The description of film during projection was given by Dr. L. H. Jorstad.

"Clinical Effects of Radiation from Radium on Tumors," illustrated with lantern slides, Dr. Ellis Fischel.

"Observations on the Practical Application of Radium and X-Ray in the Treatment of Malignant Disease," Dr. L. R. Sante.

Discussion by Dr. Joseph Grindon; Drs. Fischel and Sante closing.

A motion picture showing the "Movement of the Alimentary Tract in Experimental Animals," prepared by Professor A. J. Carlson, of the University of Chicago, was presented through the courtesy of Deshell Laboratories, Inc. The description of the picture was given by Mr. H. W. Frizzell.

Attendance 317.

HERBERT S. LANGSDORF, M.D., Secretary.

Annual Meeting of the Council, January 9, 1929

The meeting was called to order at 8:40 p. m. by the president, Dr. Cleveland H. Shutt.

A letter from Oscar C. Mueller, of Beverly Hills, California, with a copy of a law pertaining to expert medical testimony was read, and on motion of Dr. E. C. Funsch was referred to the committee on health and public instruction.

A letter from Charles W. Rutledge, chairman of the Henry Shaw Memorial Committee, was read.

Dr. John Green moved that the president be empowered to appoint a delegate to represent the Society on this committee. Seconded by Dr. E. C. Funsch and carried. Dr. Shutt appointed Dr. Green to serve on this committee.

The following were elected to membership: Junior, H. Walter Eyer mann, Missouri Building; Harold H. Feller, 3505 N. Grand Boulevard; David B. Flavan, 525 Frisco Building; John A.

Meredith, Missouri Pacific Hospital; Edward G. Stevens, 6136 Southwest Avenue.

On motion of Dr. C. A. Vosburgh, seconded by Dr. E. C. Funsch and carried, Dr. Thomas A. Hopkins was elected an honor member.

Various subcommittees of the Council, standing and special committees, submitted by the president, were approved.

HERBERT S. LANGSDORF, M.D., Secretary.

JOINT MEETING OF STODDARD, BUTLER, DUNKLIN, NEW MADRID AND PEMISCOT COUNTY MEDICAL SOCIETIES

Pursuant to an invitation, nineteen members of the Stoddard, Butler, Dunklin, New Madrid and Pemiscot County Medical Societies and six guests met in the Christian Church at Malden, December 27, 1928, at 6:00 p. m. Members present were: Drs. W. L. Brandon, J. L. Harwell, A. R. Rowe and Wm. Spaulding, Poplar Bluff; T. C. Allen and W. H. Goad, Bernie; Paul Baldwin and E. L. Spence, Kennett; J. P. Brandon and W. J. Hux, Essex; S. E. Mitchell and J. D. Van Cleve, Malden; J. H. Cochran, Gideon; L. E. Cooper, Coutre; Edward Ford, Bloomfield; J. W. Johnston, Hayti; Frank LaRue, Dexter; Claude McRaven, Marston; R. E. Speidel, Senath. Guests: Drs. F. R. Atkins, Caruthersville; E. G. Cope, Hornersville; George Dalton, Malden; Ralph Horton, Dexter; J. W. Robbins, Steele; G. T. Van Cleve, Malden.

A luncheon was served by the ladies of the Christian Church.

It was voted to be the sense of those present that an informal group be formed of the county societies of the five counties for scientific and social gatherings. This is not the organization of a new society but an informal gathering of the five societies. All reputable physicians in the five counties are invited to the meetings. No officers were elected. The president of the county society will preside when the meeting occurs in his county. Meetings will be held regularly, the exact dates to be fixed, in the following order of counties: Dunklin, Stoddard, Pemiscot, Butler and New Madrid.

Dr. T. C. Allen, Bernie, was unanimously elected general secretary to arrange programs and details in collaboration with the secretary of the county society in which the next meeting is to be held.

The general feeling was that the State Association was too large to give that close contact that general practitioners desire and need and that the county society is too small for efficient work and a sustained interest. These five counties are very similar in topography, citizenry and hygienic questions, and the interests of their physicians are very similar. Every town in the five counties is linked by a paved or hard-surfaced road so that the meetings can be held conveniently, and we believe they will prove a success and a great source of pleasure and inspiration to the membership of these county societies.

At this first meeting three papers were read: "Measles Prophylaxis with Serum, of Adults, Who Have Had Measles in Childhood," Dr. J. D. Van Cleve, Malden; "Diagnosis and Treatment of Epidemic Cerebrospinal Meningitis," Dr. J. H. Cochran, Gideon; "Manifestations of Malaria Sometimes Overlooked," Dr. T. C. Allen, Bernie. All papers were exhaustively discussed.

WOMEN'S AUXILIARY

OFFICERS 1928-1929

President, Mrs. Willard Bartlett, St. Louis.
President-Elect, Mrs. M. P. Ravenel, Columbia.
1st Vice President, Mrs. Harry F. Parker, Warrensburg.
2nd Vice President, Mrs. T. O. Klingner, Springfield.
3rd Vice President, Mrs. M. A. Hanna, Kansas City.
4th Vice President, Mrs. James F. Owens, St. Joseph.
Corresponding Secretary, Mrs. Theodore Prewitt Brookes, St. Louis.
Recording Secretary, Mrs. David S. Long, Harrisonville.
Treasurer, Mrs. W. H. Goodson, Liberty.
Auditor, Mrs. Vilray P. Blair, St. Louis.
Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Hinchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

ORGANIZED COUNTIES AND PRESIDENTS OF WOMEN'S AUXILIARIES

COUNTY	PRESIDENT	ADDRESS
Atchison.....	Mrs. E. P. Taylor.....	Fairfax
Audrain.....	Mrs. H. C. Brashear.....	Mexico
Bates.....	Mrs. E. N. Chastain.....	Butler
Boone.....	Mrs. M. P. Ravenel.....	Columbia
Buchanan.....	Mrs. F. H. Spencer.....	St. Joseph
Butler.....	Mrs. L. B. Knecht.....	Poplar Bluff
Caldwell.....	Mrs. Emma A. B. Thompson.....	Breckenridge
Cape Girardeau.....	Mrs. W. W. Ford.....	Gordonville
Cass.....	Mrs. J. S. Triplett.....	Harrisonville
Clay.....	Mrs. J. J. Gaines.....	Excelsior Springs
Clinton.....	Mrs. C. H. Risley.....	Cameron
Cole.....	Mrs. S. P. Howard.....	Jefferson City
Daviess.....	Mrs. L. R. Doolin.....	Gallatin
Dent.....	Mrs. A. T. McMurtry.....	Salem
Gentry.....	Mrs. J. N. Barger.....	Albany
Greene.....	Mrs. Paul F. Cole.....	Springfield
Grundy.....	Mrs. J. E. Neely.....	Trenton
Henry.....	Mrs. J. J. Russell.....	Deepwater
Holt.....	Mrs. F. E. Hogan.....	Mound City
Iron.....	Mrs. R. W. Gay.....	Ironton
Jackson.....	Mrs. A. L. Skoog.....	Kansas City
Jasper.....	Mrs. C. C. Cummings.....	Joplin
Johnson.....	Mrs. H. F. Parker.....	Warrensburg
Knox.....	Mrs. W. F. O'Connor.....	Edina
Laclede.....	Mrs. J. C. Scott.....	Lebanon
Lafayette.....	Mrs. J. D. Guyot.....	Higginsville
New Madrid.....	Mrs. P. M. Mayfield.....	Portageville
Nodaway.....	Mrs. H. S. Maxwell.....	Hopkins
Phelps.....	Mrs. A. S. McFarland.....	Rolla
Pike.....	Mrs. T. G. Hetherlin.....	Louisiana
Platte.....	Mrs. H. M. Clark.....	Platte City
Randolph.....	Mrs. T. S. Fleming.....	Moberly
St. Francois.....	Mrs. G. L. Watkins.....	Farmington
St. Louis City.....	Mrs. Raymond M. Spivy.....	St. Louis
St. Louis.....	Mrs. W. F. O'Malley.....	Webster Groves
Saline.....	Mrs. F. A. Howard.....	Slater
Scotland.....	Mrs. P. M. Baker.....	Memphis
Vernon-Cedar.....	Mrs. T. B. Todd.....	Nevada

ST. LOUIS AUXILIARY

The Women's Auxiliary to the St. Louis Medical Society gave a George Washington birthday dinner, Tuesday evening, February 19, 1929. Approximately 150 were present. These dinners have been a feature of the Auxiliary since the opening of the new St. Louis Medical Society building with its beautiful banquet hall.

After dinner the men adjourned to the audi-

torium for a scientific program and the women remained for cards and a social hour.

The next meeting of the Auxiliary will be the annual spring bridge luncheon to be held at the Medical Society building, April 3, 1929. This will provide an opportunity for Auxiliary members to entertain their friends in unusually charming surroundings. Many reservations have already been made.

MRS. H. McCLURE YOUNG.

MISCELLANY

THE CANCER CAMPAIGN IN KANSAS CITY

A successful cancer control campaign was held in Kansas City, Missouri, from November 12-24, inclusive, this activity being the culmination of the interest aroused in that city regarding methods of cancer prevention and control.

The campaign was conducted under the auspices of the Kansas City Joint Cancer Control Committee, and the participating agencies included the Jackson County Medical Society, the Kansas City Health Department, the Health Conservation Association and the American Society for the Control of Cancer. Dr. Ellis Fischel, St. Louis, is the state chairman for the Society, and Dr. Edward G. Blair, chairman for Kansas City, had direct supervision of the activities.

The members of the local executive committee included the following: Dr. Edward G. Blair, chairman; Dr. Kerwin W. Kinard, president of the county medical society; Dr. E. W. Cavaness, city health commissioner; Dr. Elmer D. Twyman, representing the cancer control committee of the Health Conservation Association; and Mr. A. H. Jewell, executive secretary of the Health Conservation Association.

The features of this educational movement included newspaper publicity; articles in house organs; radio talks; addresses before groups of nurses, luncheon clubs and other lay organizations; the distribution of literature; and the placing of posters and window cards.

The newspapers gave excellent support, at least 112 inches of space being devoted to news of the campaign. The *Kansas City Star*, with a circulation of approximately 240,000, carried five bulletins incorporating the information contained in the Society's series of articles, "The New Idea of Cancer." The *Kansas City Journal* carried a comprehensive editorial and several news items. Articles were also published by a number of house organs and community newspapers.

Four radio talks were broadcast over Station WDAF, operated by the *Kansas City Star*, the time given varying from five to fifteen minutes.

Twelve addresses were presented to luncheon clubs and other groups, and three addresses were given to various nursing organizations in the city.

Through the courtesy of Dr. E. W. Cavaness, city health officer, 500 window cards were placed by the Kansas City Health Department in store windows and 200 one-sheet posters were placed in vacant buildings during the campaign.

Several 24-sheet posters were displayed on their billboards by the Kansas City Poster Advertising Company and the General Outdoor Advertising Company also displayed several smaller posters.

A total of 73,800 pieces of literature was distributed, including copies of "Danger Signals," "A Message to You," "The Key Man in Cancer Control," "How the Dentist Can Help," "How the

Nurse Can Help," and "The Prevention of Cancer," by Ewing. Of the literature distributed, 20,000 copies of the Society's dodger, "Danger Signals," were wrapped in packages by eight drug stores; while 50,000 copies of another publication of the Society, "A Message to You," were accepted for distribution by the Kansas City Life Insurance Company, to be sent out as a stuffer in their renewal letters to policyholders.

The Health Conservation Association furnished headquarters for the campaign and the services of their executive secretary and publicity man.—*American Society for the Control of Cancer.*

TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

NORMAL HORSE SERUM.—A normal horse serum (New and Nonofficial Remedies, 1928, p. 348) marketed in packages of one syringe containing 10 cc.; in packages of two syringes each containing 10 cc.; in packages of one vial containing 25 cc.; in packages of one double ended vial containing 50 cc.; also in packages of one double ended vial containing 100 cc. (The National Drug Co., Philadelphia.)

DIPHTHERIA ANTITOXIN, EXTRA CONCENTRATED.—A diphtheria antitoxin, concentrated (New and Nonofficial Remedies, 1928, p. 352) prepared by inoculating horses with diphtheria toxin. It is marketed in single vial packages of 1,000 and 20,000 units; in syringes containing, respectively, 1,000, 3,000, 5,000, 10,000 and 20,000 units. (The National Drug Co., Philadelphia.)

TETANUS ANTITOXIN.—A tetanus antitoxin, concentrated (New and Nonofficial Remedies, 1928, p. 356) prepared by inoculating horses with tetanus toxin. It is marketed in packages of one vial containing 1,500 units; in packages of one syringe containing 1,500 units; also in packages of one syringe containing 5,000 units. (The National Drug Co., Philadelphia.)

ANTISTREPTOCOCCIC SERUM.—A polyvalent antistreptococcus serum (New and Nonofficial Remedies, 1928, p. 361) obtained by immunizing horses with streptococci from various clinical sources. It is marketed in packages of one syringe containing 20 cc. and in packages of one double ended vial containing 50 cc. (The National Drug Co., Philadelphia.)

VACCINE VIRUS.—A vaccine virus (New and Nonofficial Remedies, 1928, p. 362) marketed in packages containing, respectively, one, five and ten capillary tubes. (The National Drug Co., Philadelphia.)

RABIES VACCINE—Human (Semple Method).—An antirabic vaccine (New and Nonofficial Remedies, 1928, p. 363) prepared according to the general method of David Semple (phenol killed). Marketed in sets of two packages, the first containing four 2 cc. vials and the second containing ten 2 cc. vials. (The National Drug Co., Philadelphia.)

PERTUSSIS VACCINE.—A pertussis bacillus vaccine (New and Nonofficial Remedies, 1928, p. 376) marketed in packages of one 5 cc. vial containing 4,000 million killed pertussis bacilli per cc.; in packages of one 15 cc. vial containing 4,000 million killed pertussis bacilli per cc.; in packages of one 30 cc. vial containing 4,000 million killed pertussis bacilli per cc. (The National Drug Co., Philadelphia.)

PNEUMOCOCCUS VACCINE.—A pneumococcus vaccine

(New and Nonofficial Remedies, 1928, p. 379) marketed in packages of one 5 cc. vial containing 5,000 million killed pneumococci per cc.; in packages of one 15 cc. vial containing 5,000 million killed pneumococci per cc.; in packages of one 30 cc. vial containing 5,000 million killed pneumococci per cc. (The National Drug Co., Philadelphia.)

STAPHYLOCOCCUS VACCINE.—A staphylococcus vaccine (New and Nonofficial Remedies, 1928, p. 391) marketed in packages of one 5 cc. vial containing 2,000 million killed bacilli per cc.; in packages of one 15 cc. vial containing 2,000 million killed bacilli per cc.; in packages of one 30 cc. vial containing 2,000 million killed bacilli per cc. (The National Drug Co., Philadelphia.)

TYPHOID VACCINE.—A typhoid vaccine (New and Nonofficial Remedies, 1928, p. 383) marketed in packages of one 5 cc. vial containing 1,500 million killed typhoid bacilli per cc.; in packages of one 15 cc. vial containing 1,500 million killed typhoid bacilli per cc.; in packages of one 30 cc. vial containing 1,500 million killed typhoid bacilli per cc. (The National Drug Co., Philadelphia.)

TYPHOID-PARATYPHOID COMBINED VACCINE.—A typhoid vaccine (New and Nonofficial Remedies, 1928, p. 383) marketed in packages of three 1 cc. vials, the first dose containing 500 million killed typhoid bacilli, 375 million killed paratyphoid A bacilli and 375 million killed paratyphoid B bacilli, the second and third doses each containing 1,000 million killed typhoid bacilli, 750 million killed paratyphoid A bacilli and 750 million killed paratyphoid B bacilli; in packages of one 5 cc. vial containing 1,000 million killed typhoid bacilli, 750 million killed paratyphoid A bacilli and 750 million killed paratyphoid B bacilli per cc.; in packages of one 15 cc. vial containing 1,000 million killed typhoid bacilli, 750 million killed paratyphoid A bacilli and 750 million killed paratyphoid B bacilli per cc.; in packages of one 30 cc. vial containing 1,000 million killed typhoid bacilli, 750 million killed paratyphoid A bacilli and 750 million killed paratyphoid B bacilli per cc.; in packages of ninety 1 cc. vials (thirty immunizations), being thirty sets of three doses, the first dose containing 500 million killed typhoid bacilli and 375 million each of killed paratyphoid A and B bacilli, the second and third doses containing, respectively, twice the number of bacilli in the first dose. (The National Drug Co., Philadelphia.)

TYPHOID-PARATYPHOID A VACCINE.—A typhoid vaccine (New and Nonofficial Remedies, 1928, p. 383) marketed in packages of one 5 cc. vial containing 750 million killed typhoid bacilli and 250 million killed paratyphoid A bacilli per cc.; in packages of one 15 cc. vial containing 750 million killed typhoid bacilli and 250 million killed paratyphoid A bacilli per cc.; in packages of one 30 cc. vial containing 750 million killed typhoid bacilli and 250 million killed paratyphoid A bacilli per cc. (The National Drug Co., Philadelphia.)

SCARLET FEVER STREPTOCOCCUS TOXIN FOR PREVENTIVE IMMUNIZATION.—P. D. & Co.—It is prepared by the method of Drs. Dick by license of the Scarlet Fever committee, Inc. (New and Nonofficial Remedies, 1928, p. 392). Marketed in packages of five vials of toxin, containing, respectively, 500, 2,000, 8,000, 25,000 and 80,000 skin test doses; in packages of fifty vials of toxin, ten containing 500 skin test doses, ten containing 2,000 skin test doses, ten containing 8,000 skin test doses, ten containing 25,000 skin test doses, and ten containing 80,000 skin test doses. Parke, Davis & Co., Detroit. (Jour. A. M. A., January 5, 1929, p. 55.)

BOTHRUPS ANTITOXIN.—An antitoxic serum prepared by immunizing animals against the venom of

the tropical American serpents of the genus *Bothrops*. Evidence has accumulated to show that the venom of certain snakes may be neutralized by the employment of a serum obtained from animals that have been injected with venom from a snake of the same family. Bothrops antitoxin is used to neutralize the venom injected by the bite inflicted by members of the genus *Bothrops*. The serum is administered intramuscularly or subcutaneously; in cases seen late or in the presence of severe symptoms it may be administered intravenously.

ANTIVENIN (Bothropic).—Tropical American Anti-Snake-Bite Serum.—An antitoxic serum prepared by injecting horses with venom from serpents of the genus *Bothrops*, especially of the "Fer-de-Lance" (*Bothrops atrox*). It is claimed to have neutralizing effect against the venom of the genus represented. The serum is marketed in syringes of 10 cc. (a single dose). H. K. Mulford Co., Philadelphia.

EPHEDRINE HYDROCHLORIDE—Lilly.—A brand of ephedrine hydrochloride—N. N. R. (New and Nonofficial Remedies, 1928, p. 175). It is also supplied in the form of Pulvules Ephedrine Hydrochloride—Lilly, $\frac{3}{8}$ grain, Pulvules Ephedrine Hydrochloride—Lilly, $\frac{3}{4}$ grain and Solution Ephedrine Hydrochloride—Lilly, 3%. Eli Lilly & Co., Indianapolis.

TABLETS EPHEDRINE HYDROCHLORIDE—Squibb, $\frac{3}{8}$ grain.—Each tablet contains ephedrine hydrochloride—Squibb (THE JOURNAL, September 1, 1928, p. 645) $\frac{3}{4}$ grain. E. R. Squibb & Sons, New York.

TABLETS EPHEDRINE HYDROCHLORIDE—Squibb, $\frac{3}{4}$ grain.—Each tablet contains ephedrine hydrochloride—Squibb (THE JOURNAL, September 1, 1928, p. 645) $\frac{3}{4}$ grain. E. R. Squibb & Sons, New York.

MACDOWELL'S WHEAT-NUT-CASEIN DIETETIC FLOUR.—A flour prepared from wheat, edible nuts and casein, to which has been added a leavening mixture composed of potassium bitartrate and sodium bicarbonate and sodium chloride as flavoring. The product has approximately the following composition: protein, 28.67; carbohydrate, 28.68; fat, 18.69; ash, 5.64; fiber and pentosans, 7.59; and water, 8.49. MacDowell's wheat-nut-casein dietetic flour is proposed for use in the dietetic treatment of diabetes and wherever restriction of carbohydrate in the diet is desired. MacDowell Brothers, Ogdensburg, N. Y.

PIRQUET TEST FOR TUBERCULOSIS (Bovine Type).—Tuberculin—Koch (New and Nonofficial Remedies, 1928, p. 368) marketed in capillary tubes, put up in packages, respectively, of one tube, two tubes and ten tubes, accompanied by controls. H. K. Mulford Co., Philadelphia.

SYRUP EPHEDRINE HYDROCHLORIDE. (Double Strength)—Swan-Myers.—It contains ephedrine hydrochloride—Swan-Myers (New and Nonofficial Remedies, 1928, p. 176) 0.4390 Gm., in 100 cc. ($\frac{1}{4}$ grain per fluidrachm) and alcohol 12 per cent. Swan-Myers Co., Indianapolis.

SQUIBB'S MINT-FLAVORED COD LIVER OIL.—Cod liver oil—Squibb (New and Nonofficial Remedies, 1928, p. 253) containing 0.67 per cent of oil of spearmint as flavoring. E. R. Squibb & Sons, New York.

TETANUS ANTITOXIN (Bovine).—A tetanus antitoxin, concentrated (New and Nonofficial Remedies, 1928, p. 357) derived from the blood serum of cattle immunized against the toxin of *B. tetani*. Marketed in packages of one syringe containing 1,500 units (one immunizing dose). H. K. Mulford Co., Philadelphia.

CAPSULES OVARIAN SUBSTANCE, DESICCATED.—P. D. & Co., 5 grains.—Each capsule contains 5 grains of ovarian substance, desiccated—P. D. & Co.

(New and Nonofficial Remedies, 1928, p. 290). Parke, Davis & Co., Detroit.

TABLETS WHOLE OVARY—Lederle, 2½ grains.—Each tablet contains 2½ grains of whole ovary—Lederle (New and Nonofficial Remedies, 1928, p. 292). Lederle Antitoxin Laboratories, New York.

RABIES VACCINE—Gilliland (Semple Method).—Anantirabic vaccine (New and Nonofficial Remedies, 1928, p. 363) prepared according to the general method of Davis Semple (phenol killed). Marketed in packages of fourteen syringes each containing 2 cc. The Gilliland Laboratories, Inc., Marietta, Pa.

ANTIPNEUMOCOCCIC SERUM. Type I.—This antipneumococcus serum (New and Nonofficial Remedies, 1928, p. 361) is also marketed in packages of one 50 cc. gravity container. E. R. Squibb & Sons, New York.

ANTISTREPTOCOCCIC SERUM—Squibb.—This antistreptococcus serum (New and Nonofficial Remedies, 1928, p. 362) is also marketed in packages of one 50 cc. gravity container. E. R. Squibb & Sons, New York. (Jour. A. M. A., December 8, 1928, p. 1805.)

SALYRGAN—**MERSALYL**—**SODIUM**—(o-[hydroxymercuric-methoxy-propylcarbonyl] phenoxy) acetate.—Salyrgan contains 39.6 per cent. of mercury in nonionizable form. Salyrgan has been demonstrated to exert a destructive action on the spirochete of syphilis in rabbits, but is used chiefly as a diuretic. It induces diuresis only provided sufficient renal tissue is still intact and is therefore contraindicated in acute diseases of the kidney as well as in advanced nephritis. It is effective in ascites and edema of cardiac and cardiorenal origin; also in ascites resulting from cirrhosis of the liver. Salyrgan is supplied only in the form of a 10 per cent solution in ampoules of 1 cc. and 2 cc. H. A. Metz Laboratories, Inc., New York.

BROMIPIN (33 Per Cent.)—**BROMINIZED SESAME OIL (33 Per Cent.)**—Merck.—A bromine addition product of sesame oil, containing from 31 to 35 per cent of bromine in organic combination. It acts like the inorganic bromides. The combination is not broken up in the stomach; but a portion of bromine is split off in the intestine; the remaining compound is readily absorbed and largely deposited in the tissues where it is slowly split up. The product is also used as a contrast medium for roentgen diagnosis of the tracheo-bronchial tree. It is stated to be applicable in cases of mild or medium tuberculosis in which the use of an iodized oil is contraindicated. Merck & Co., Inc., Rahway, N. J. (Jour. A. M. A., December 22, 1928, p. 1995.)

HAIR-A-GAIN.—This is an alleged enhancer of beauty, sheen, luster, color, texture, contour and abundance of the scalp and hair. Georgia O. George, of Los Angeles, claims to be the inventor, originator and sole manufacturer of this preparation and of Mask O'Uth Liquid Mask and Scientific Systemethod. "Hair-a-Gain" is advertised in newspapers and by radio broadcasting stations WMCA, New York, WHK, Cleveland, WEBH, Chicago, KMOX, St. Louis, KFXF, Denver and various stations on the Pacific Coast. The A. M. A. Chemical Laboratory reports that Hair-a-Gain Liquid Shampoo is marketed in bottles containing about 240 cc. of a yellow, turbid, viscous liquid, possessing a faint odor suggestive of tar and a marked insoluble residue. From its examination the Laboratory concludes that the preparation is essentially a water solution of ordinary soap. Probably it is the tar, or tarlike substance, that is incorporated in the Hair-a-Gain Paste that has been responsible for such unpleasant effects as have been reported from its use. (Jour. A. M. A., December 22, 1928, p. 2012.)

TUBERCULIN OINTMENT (Moro Ointment) (Bovine Type).—An ointment containing tuberculin—Koch (New and Nonofficial Remedies, 1928, p. 368) 50 per cent., with an equal part of hygroscopic wool fat. H. K. Mulford Co., Philadelphia.

TUBERCULIN INTRACUTANEOUS (Bovine Type).—Marketed in single packages of one intradermal syringe containing tuberculin—Koch (New and Nonofficial Remedies, 1928, p. 368), 0.2 mg. in physiological solution of sodium chloride, 0.05 cc.; in packages of five intradermal syringes each containing tuberculin—Koch (New and Nonofficial Remedies, 1928, p. 368) 0.2 mg. in physiological solution of sodium chloride; and in single vial packages containing tuberculin—Koch (New and Nonofficial Remedies, 1928, p. 368) 0.012 Gm. in physiological solution of sodium chloride, 3 cc. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 19, 1929, p. 231.)

CONCENTRATED LIVER EXTRACT—Armour.—A solution of a water-soluble fraction extracted from fresh mammalian liver. One hundred cc. represents fresh liver, 767 Gm. (1 fluidounce represents 8 ounces avoirdupois). Concentrated liver extract—Armour is used in the treatment of pernicious anemia. Its value in other types of anemia has not been established. Concentrated liver extract—Armour is administered orally. (Armour & Co., Chicago.)

AMPULES DEXTROSE, U. S. P., 10 Gm., 20 cc.—Each ampule contains dextrose, U. S. P. (New and Nonofficial Remedies, 1928, p. 244) 10 Gm., in distilled water, 20 cc.; buffered with sodium glycerophosphate, 0.03 per cent. Abbott Laboratories, North Chicago.

AMPULES DEXTROSE, U. S. P., 25 Gm., 50 cc.—Each ampule contains dextrose, U. S. P. (New and Nonofficial Remedies, 1928, p. 244) 25 Gm., in distilled water, 50 cc.; buffered with sodium glycerophosphate, 0.03 per cent. Abbott Laboratories, North Chicago.

POLLEN ALLERGEN SOLUTIONS—Squibb.—In addition to the products listed in New and Nonofficial Remedies, 1928, p. 31, the following products marketed in 5 cc. vials, have also been accepted: Dandelion Pollen Allergen Solution—Squibb; English Plantain Pollen Allergen Solution—Squibb; Goldenrod Pollen Allergen Solution—Squibb; Perennial Rye Grass Pollen Allergen Solution—Squibb; Ragweed (Dwarf) Pollen Allergen Solution—Squibb; Ragweed (Giant) Pollen Allergen Solution—Squibb; Red Top Pollen Allergen Solution—Squibb; Russian Thistle Pollen Allergen Solution—Squibb; Sunflower Pollen Allergen Solution—Squibb. E. R. Squibb & Sons, New York.

POLLEN ALLERGEN SOLUTIONS—Squibb.—5 cc. vial packages of the following products have also been accepted: Bermuda Grass Pollen Allergen Solution—Squibb; June Grass Pollen Allergen Solution—Squibb; Mugwort Pollen Allergen Solution—Squibb; Orchard Grass Pollen Allergen Solution—Squibb; Sagebrush Pollen Allergen Solution—Squibb; Western Ragweed Pollen Allergen Solution—Squibb. E. R. Squibb & Sons, New York.

TABLETS CINCHOPHEN—Abbott, 5 grains.—Each tablet contains cinchophen (New and Nonofficial Remedies, 1928, p. 123) 5 grains. Abbott Laboratories, North Chicago.

SULPHARSPHENAMINE—Squibb, 0.9 Gm. Ampules.—Each ampule contains sulpharsphenamine—Squibb (New and Nonofficial Remedies, 1928, p. 84) 0.9 Gm. E. R. Squibb & Sons, New York. (Jour. A. M. A., January 26, 1929, p. 313.)

ACTEROL.—Acterol (a preparation containing irradiated ergosterol), it is reported, has been withdrawn from the market by Mead Johnson & Co., un-

til such time that further animal and clinical experimental studies shall have determined its therapeutic status. (Jour. A. M. A., January 12, 1929, p. 170.)

"INFLUENZA SEROBACTERIN MIXED"—A REVIVAL.—In 1918 the Council on Pharmacy and Chemistry denied admission to New and Nonofficial Remedies of "Influenza Serobacterin Mixed—Mulford," holding that there was no evidence for the value of the mixture and that its use was illogical. Since then nothing has happened to question the soundness of this judgment of the Council. Nevertheless, a circular letter sent to a large industrial concern conveys the impression that "Influenza Serobacterin Mixed" is an effective means of checking influenza and of treating respiratory infections. The apparent conviction by the promulgators of "Influenza Serobacterin Mixed" of the value of their preparation is not the slightest guarantec of their truth. This is merely an ill considered crude revamping of old notions and phrases, surviving in discredited advertising matter, and now revived during a period of public fears in time of epidemic. (Jour. A. M. A., January 19, 1929, p. 233.)

THE TRICHO SYSTEM.—According to the advertising booklet distributed by "beauty parlors": "Tricho System is the invention of Albert C. Geyser, M.D., a New York physician internationally famous as a specialist on Electro-Therapy." Dr. Geyser claims to have so modified the X-rays that with his apparatus it is possible to produce permanent baldness in hairy areas without any possibility of doing damage to the skin. It is not necessary to tell physicians—at least those with any extensive dermatologic experience—how serious a menace is the use of X-rays in the removal of superfluous hair. The tragedy in the case arises from the fact that the precancerous keratoses and other untoward effects are usually not evident for months after the "treatment" has been given. Further, the victims—nearly always women—frequently refuse to prosecute, because of the inevitable publicity. A few dermatologists have, however, reported cases of the disfiguring and dangerous sequelae that have followed the use of the Tricho System. (Jour. A. M. A., January 19, 1929, p. 252.)

MORE INFLUENZA VACCINE PROPAGANDA.—As might have been expected from previous activities of the firm, among the earliest to enter the field in an endeavor to promote vaccine products during the current influenza epidemic has been the G. H. Sherman Company of Detroit. In 1924 the Council condemned the firm's influenza vaccine, particularly because of lack of evidence in its support, and all of the mixed vaccines in general because their use is not in the interest of sound therapy and public health. The more recent literature circulated by Sherman includes the claim that records of Drs. Don C. Sutton, Frederick Tice, Alexander Lambert and William O'Neill Sherman constitute suitable evidence in support of the use of the prophylactic vaccine against this disease. Letters from Drs. Sutton and Sherman cast considerable doubt not only on the statistics and statements cited by G. H. Sherman in support of the use of his preparations but also on the right of that concern to use the material in advertising. For some years the products of G. H. Sherman have not been advertised in any of the publications of the American Medical Association and none stands accepted for New and Nonofficial Remedies at the present time. (Jour. A. M. A., January 26, 1929, p. 316.)

PROPAGANDA FOR REFORM

NEISSER (Gonococcic) Vaccine and Erysipelas Vaccine (National Drug Co.) Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that the National Drug Co., Philadelphia, markets Neisser (Gonococcic) Vaccine and Erysipelas Vaccine. In 1924 the Council omitted from New and Nonofficial Remedies all gonococcus vaccines and in 1925 it omitted all streptococcus vaccines because experience with such preparations had not established their value and because the Council's consultants concluded that they had no field of usefulness. In accordance with this action, the Council declared the preparations of the National Drug Co. inadmissible to New and Nonofficial Remedies. (Jour. A. M. A., January 5, 1929, p. 44.)

TARTAROFF.—This is exploited as a "marvelous discovery" that "acts like magic on the teeth"; "Tartaroff is the greatest scientific discovery of the age. Nothing like it ever prepared before. It is not a tooth paste but a simple, harmless preparation that can be applied to the teeth in a few seconds. Immediately the teeth are transformed into gems of pearl white beauty." From the analysis of the American Dental Association it appears that Tartaroff is, for all practical purposes, a mixture of hydrochloric acid and water, with a little coloring matter added. The claim that a 1.2 per cent. solution of hydrochloric acid is harmless to the teeth is pernicious to a degree. (Jour. A. M. A., January 5, 1929, p. 73.)

SEMAFOR, A Dentomedical Nostrum.—The Indicator Laboratories, Inc., Chicago, put out a preparation, "Semafor" that, it is claimed, "combats unpleasant Breath (Halitosis), Acidity, Mouth Infections (Sepsis), and Tooth Decay, by its Cleansing, Healing, Germicidal Action—and removes sticky film." Semafor is described as the "New Red Purifier that turns *White* when disorders lurk in mouth and throat." According to the analysis of the chemist of the American Dental Association Semafor is nothing more than a simple saline solution to which a little alcohol, sodium carbonate and an indicator, in the form of phenolphthalein have been added. The selling point of Semafor is that of getting the public to believe that, if the diluted pink Semafor solution, when put in the mouth, is partially or wholly decolorized, the user is suffering from "acid mouth." The fact that normal saliva from perfectly healthy mouths is faintly acid in reaction makes it obvious that the vast majority of people who would use Semafor would find this solution partially decolorized. They will also find, as a matter of course, that if, at the time of using Semafor, they repeatedly rinse their mouth with this alkaline solution, with each rinsing the solution that is ejected will be nearer the normal Semafor solution color. This will further convince the public that their mouths are being "disinfected" although, of course, the product is not a germicide. (Jour. A. M. A., January 5, 1929, p. 73.)

GEORGE A. BREON AND SCIENTIFIC MEDICINE.—No products of George A. Breon, or of the George A. Breon Co. have ever been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies. George A. Breon & Co. is a concern that has carried water on both shoulders. On the one hand it appeals to uncritical and unscientific physicians with a series of prescription products that are both uncritical and unscientific; on the other hand, it has made a number of nostrums for fraudulent mail-order concerns and George A. Breon himself is re-

ported to have been the originator of some of the nostrums. (Jour. A. M. A., January 5, 1929, p. 76.)

NARCOSAN AND DRUG ADDICTION.—Narcosan is the "discovery" of one A. S. Horowitz, who came to the U. S. in 1913 and has been more or less continuously identified with attempts to promulgate cures for all sorts of disorders. There was the Horowitz-Beebe treatment for cancer known as "Autolysin," there were the Merrell Proteogens for the treatment of practically everything, and, finally, there was Narcosan, originally brought out about 1920 under the name "Lipoidal Substances." Lipoidal Substances was not accepted by the Council on Pharmacy and Chemistry, because it was of unestablished composition and the clinical reports were not convincing. In 1926 an article appeared on the subject of Narcosan, which paper had previously been rejected by The Journal of the American Medical Association. Since then sensational newspaper articles about Narcosan have appeared. Now a preliminary report of the Mayor's Committee on Drug Addiction of the City of New York has been published. It is signed by the chairman of the committee, Dr. Alexander Lambert, who was one of the authors of the favorable report on Narcosan published in 1926. The committee report is summed up in the closing clause: "Narcosan has no merit as a specific treatment of drug addiction." (Jour. A. M. A., January 12, 1929, p. 151.)

BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 9, No. 1. (Mayo Clinic Number—February 1929) 247 pages with 141 illustrations. Per Clinic year (February 1929 to December 1929.) Philadelphia and London: W. B. Saunders Company. Paper \$12.00; Cloth, \$16.00.

This number contains contributions from the staff of the Mayo Clinic and the Mayo Foundation. It comprises some 247 pages with numerous illustrations.

TEXTBOOK OF UROLOGY. For Students and Practitioners. By Daniel N. Eisendrath, M.D., Attending Urologist Michael Reese and Chicago Memorial Hospitals, etc., and Harry C. Rolnick, M.D., Associate Urologist Mt. Sinai Hospital, etc. 700 black and white illustrations. Eleven in color. Philadelphia and London: J. B. Lippincott Company. Price \$9.00.

I was impressed with the splendid manner in which the authors have boiled down the subject to suit the taste of the most fastidious. The student, practitioner and specialist can read this magnificent treatise on the urinary tract and not only be entertained but amply repaid in their search for modern and constructive urology. The arrangement of the contents was carefully planned and certainly beautifully detailed. The exhaustive study of the male genitalia and venereal disease deserves commendation. Diseases of the male genitalia constitute an important part of daily office practice and should be given serious study, not neglected for the more refined aspects of urology.

The chapters on bladder, ureter and kidney are exhaustively discussed, including diagnosis, treatment and surgery. Many beautiful drawings and illustrations illumine the text. The refined methods of diagnostic urology, combined with splendid surgical

technic, have not been neglected. Altogether, this book is an attractive addition to a library for the student, practitioner, specialist, or teacher.

J. H. S.

METHODS OF BIOLOGICAL ASSAY. By J. H. Burn, M.A., M.D. (Camb.) Director of the Pharmacological Laboratory of the Pharmaceutical Society of Great Britain, etc. With an introduction by H. H. Dale, C.B.E., Sec. R.S., M.D., F.R.C.P. Oxford University Press. American Branch, 35 West 32d Street, New York City. 1928. Price \$2.55.

This volume fills a need as a reference book on the biological assay of such drugs in common use as digitalis and ergot. It will probably be more acceptable to the internist with critical attitude and a studious trend who, for example, wishes to know just what is a standard unit of digitalis and how the frog and cat units may be compared. The little book belongs in the medical library and upon the shelf of the instructor in internal medicine, but will probably be of little interest to the general practitioner. Its subject matter is presented in clear concise form.

A. S. W.

PERNICIOUS ANEMIA. By Beaumont S. Cornell, M.D. (Tor.) Fellow in Duke University. Durham, North Carolina: Duke University Press. 1927. Price \$4.00.

Pernicious anemia remains a disease of unknown etiology. Recent developments have, however, changed entirely our viewpoint concerning treatment. The very successful dietetic treatment introduced clinically by Minot and Murphy has caused new interest in the disease.

Cornell's new monograph on pernicious anemia is most timely. A very complete critical review of the literature is given, the different theories of etiology are discussed, and the symptomatology is thoroughly described.

The subject is presented in a most sane manner for both the doctor and the nonmedical reader. This book should be read by every practitioner of medicine interested in the subject of anemia. R. L. H.

NOUVEAU TRAITÉ DE MÉDECINE. Pathologie du foie et des voies biliaires. G. H. Roger, Fernand Vidal, P. J. Teissier. Secrétaire De La Rédaction: M. Garnier. Fascicule XVI. Masson Et Cie, Éditeurs. Libraries De L'Académie De Médecine. 120, Boulevard Saint-Germain, Paris (VI) 1928. Price 125 Fr.

This is a large volume of 1048 pages—too large to be bound in one cover the way the book which lies before us is bound. It is uniform with the other volumes of the Nouveau Traité.

The troubles of the liver are gone into with great detail. The diagnosis is by Villaret and Justin-Besancon, with an article on functional diagnosis by Marcel Garnier. The symptomatology of liver insufficiency and over-activity is written by M. Garnier. Portal hypertension is discussed by Villaret and Justin-Besancon. Icterus is described by Vidal and Abrami. The spirochetal or hemorrhagic icterus is by Vidal and May. The article on liver congestions and degenerative types of cirrhosis is by Villaret and Justin-Besancon. The neoplasms are covered by Garnier and Cathala. Acute infectious hepatitis is by Garnier and Cathala as is also the article on tuberculosis of the liver. Syphilis of the liver is discussed by Legry. Malaria with reference

to the liver by Rieux. Abscesses of the liver by Dopter. Echinococcus by Dévé. The toxic hepatitis by Garnier and Cathala. Diseases of the blood vessels of the liver by Villaret and Justin-Besancon. Diseases of the biliary tract by Garnier and René Prieur. Diseases of the peritoneum around about the liver by Villaret and Justin-Besancon.

The above enumeration of the titles and authors shows the scope of the work. Your reviewer found nothing particularly different from current American reviews in the discussion of the cirrhosis of Laennec, but in the discussion of the cirrhosis of Hanot there is a tendency to extend it beyond the limits of neoplasm and differentiate it from the hypertrophic stage of the cirrhosis of Laennec.

The so-called van den Bergh reaction, so much in vogue in America, is not regarded by these authors as better than other functional tests already in use in France.

This volume is of interest to us at this time because our American laboratories and clinics are turning out much valuable material on the subject of the physiology and pathology of the liver; because this French work affords a contrast, to say the least, to our American work.

The very completeness of the work is to your reviewer somewhat confusing—that is, the viewpoints of the various authors differ just enough to require detailed study in order to make a clear concept in the reader's mind. But for one seeking the details of French practice, the volume would be of great value.

G. H. H.

THE PRACTICAL MEDICINE SERIES. Comprising Eight Volumes on the Year's Progress in Medicine and Surgery. General Medicine. Series 1928. Chicago: The Year Book Publishers. Price \$3.00.

Your reviewer was very favorably impressed with the section written on Infectious Diseases, by George H. Weaver. Dr. Weaver has been able to edit somewhat the material which has arisen during the year. But, in his section as well as the others, a criticism which occurs to use is that there is too much of the original material incorporated without editorial evaluation or condensation. That is, the average reader does not know the different authors quoted and therefore does not know how much weight to give their utterances. It would be of greater value if these editors were to make summaries of what the various authors have said, rather than to quote their writings verbatim.

In general, the book will be of value to those who wish to see what contributions have been made to the literature on the various subjects during the past year.

G. H. H.

THROMBO-ANGIITIS OBLITERANS. Clinical, Physiologic and Pathologic Studies. By George E. Brown, M.D., and Edgar V. Allen, M.D., Division of Medicine, Mayo Clinic, Collaborating in Pathology with Howard R. Mahorner, M.D., Fellow in Surgery, The Mayo Foundation, Illustrated. Philadelphia and London: W. B. Saunders Company. 1928. Price \$3.00.

This monograph from the Mayo Clinic throws a few new rays of light on a subject none too clear, and can be recommended as an intelligent marshalling of the more important facts of this disease. Less detailed and more easily read than Buerger's classic volume, this little book will prove acceptable to the clinician desiring to keep informed of the essential phases of the problem.

To be particularly commended are the chapters on Pathology, by Mahorner, and those on Analysis of

Symptoms, Diagnosis and Prognosis. But the practitioner will find much of interest in the section devoted to Treatment. Numerous are the preparations and methods that have been discarded, and the rationale of some of those supported by the authors is open to much doubt. Other investigators are less satisfied with the results following the injection of nonspecific proteins, either in the diminution of pain or in improving existing circulatory deficiencies; and in several well known medical centers the results of lumbar ganglionectomy have not fulfilled their high expectations.

Nevertheless, the analysis of the cases as noted at the Mayo Clinic shows a distinctly more optimistic viewpoint than has been entertained in the past, and the authors' statistics are worth careful consideration.

P. S. L.

SICKNESS IN RURAL NEW YORK

The morbidity survey in 1927 of a considerable section of rural New York according to J. V. DePorte, Albany, N. Y. (*Journal A. M. A.*, Feb. 16, 1929), has accomplished two useful purposes. It has given an indication of the absolute and relative prevalence of certain important causes of illness regarding which knowledge is quite scanty. The survey has also demonstrated the numerically unimportant position of the reportable communicable diseases. Even if one were to add the nonreportable diseases which come within the field of organized public health activities, as diarrhea and enteritis (under 2 years), syphilis, and gonorrhea, the cases of the enlarged group of diseases would equal only 5.6 per cent of all causes of illness represented in the survey. The function of public and private health agencies is the control and prevention of sickness. The experiment made by the New York State Department of Health to secure sickness statistics for a large general group of the population through direct reporting by the attending physicians leads him to conclude that greater attention should be given by public health authorities and the practicing medical profession to the nonreportable diseases which are responsible for most of the prevailing ill health.

SURVEY OF AMEBIC DYSENTERY IN CHICAGO

Amebic dysentery is not limited to the tropics and subtropics. The stimulus for the survey of which these reports by Charles Spencer Williamson and Bertha Kaplan, Chicago, and J. C. Geiger, San Francisco (*Journal A. M. A.*, Feb. 16, 1929), are a summary, lay in the fact that the senior author saw within a very short time five cases of amebic dysentery occurring under rather unusual conditions. These cases appeared in such quick succession in one building, a hotel, that a carrier among the food handlers seemed the most plausible explanation. On investigation an active case of the disease was found among the kitchen help. An examination of the food handlers and kitchen help of a number of the more important Chicago hotels disclosed three additional cases, but in these cases no connection with the previous cases could be made out. The authors suggest that the present increase of amebic dysentery may be due to a number of factors, including (1) the greater stress being placed on medical zoology in the college curriculum; (2) improved clinical laboratory examinations; (3) increased migration from the Southern to the Northern states, and (4) the reporting of these cases as a stimulus toward more thorough examinations of diarrheal stools.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

MAY, 1929

NUMBER 5

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1023 Missouri Building, St. Louis, Mo.

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ORIGINAL ARTICLES

EPIDEMIC MENINGITIS

A. SOPHIAN, M.D.

KANSAS CITY, MO.

PART IV—CONCLUSION

Findings in Cerebrospinal Fluid Examinations in Epidemic Meningitis.—*Color.*—In the great majority of cases the cerebrospinal fluid, when first obtained, shows varying degrees of turbidity, from slight cloudiness to very thick pus. In the onset, during the first stage of invasion (accumulative stage) the fluid becomes perfectly clear. In the chronic stage also the fluid becomes less turbid and may become clear.

Quantity and Pressure of Fluid.—The degree of hydrocephalus determines the quantity and pressure of the fluid obtained by puncture.

Globulin and albumin tests are strongly positive, depending upon the degree of turbidity. During the first stage of invasion in which clear fluid is obtained the reactions may be negative or weakly positive. Likewise in the chronic stage the reaction becomes less sharp, as also during recovery.

Cytology.—During the stage of invasion both the cellular count and the examination of the stained sediment will often show a normal condition. At other times, there may be a slight increase in the number of cellular elements. The cells are most often polynuclears but, like Sladen, Netter and others, I have examined a number of fluids in which lymphocytes predominated.

In the second stage of acute meningitis the cells are numerous, most of them, up to 100 per cent, being polynuclears. There may be a small percentage of lymphocytes.

During the third stage (chronic meningitis) the cells diminish considerably and there is a change in their character. The polymorphonuclear leukocytes decrease, while the lymphocytes, small and large, increase in proportion. Thus the lymphocytes rise to 60 or 80 per cent, occasionally more. The total number of cells

is about equal to that found in tuberculous meningitis.

Bacteriology.—During the first stage of invasion the fluid is usually devoid of organisms, or may show a few free bacteria which are probably part of the general bacteremia. Where the organisms are very few they may not be found in spread and may only be demonstrated by culture.

In the second stage of acute meningitis stained smear of the sediment displays varying numbers of Gram-negative, biscuit-shaped, extracellular and intracellular diplococci. The total number of bacteria and their relation to the leukocytes depend to a very great extent upon the intensity of the disease and the response to treatment. In severe cases there are many organisms, mostly extracellular. In favorably responding or milder cases the organisms are few and intracellular.

Culture shows growth of the meningococcus, usually after 18 to 24 hours' incubation.

In some cases of the third or chronic stage the bacteria are as numerous as during the acute stage. In most of these cases, however, the organisms are very few in number, so that they may be very difficult to demonstrate in the smear. They often have a clumped appearance and stain poorly. Culture may be sterile, or a delicate growth may appear after a few days' incubation.

Specific bacterial immune antibodies,—agglutinins, opsonins, bactericidal substances,—are usually absent or present only in very small quantities in the cerebrospinal fluid in epidemic meningitis.

Precipitins, apparently specific, have been demonstrated but results are inconsistent with positive cases, and negative cases occasionally give positive results.

Weil and Kafka, 1911, were the first to demonstrate that the cerebrospinal fluid in epidemic meningitis plus guinea-pig blood would give complete hemolysis. To 5 cc. of cerebrospinal fluid they add one-half cc. of guinea-pig blood.

There is constant leukocytosis with relative

When purchasing tickets to Springfield ask the ticket agent for a receipt or certificate. Deposit with the secretary at Springfield to obtain one-half fare on return trip.

polynucleosis in epidemic meningitis. Blood culture in a small percentage of cases shows the meningococcus. A greater percentage of positive blood cultures can be obtained with improved technic.

Immune bodies have been demonstrated in the blood of meningitis patients by agglutination, opsonin, precipitin, complement-fixation, bactericidal and clinical tests. For establishing positive diagnosis, however, examination must be made of the cerebrospinal fluid which, in the great majority of instances, will enable one to make an absolute diagnosis. The demonstration of specific immune bodies in the blood of meningitis cases has too many possible sources of error to be considered as one of the regular methods for diagnosis of meningitis.

Conjunctivitis.—The purulent discharge in conjunctivitis complicating meningitis, which is common, usually shows intracellular and extracellular meningococci in considerable numbers.

Herpes, especially when purulent, readily shows the meningococcus in many instances.

Urine.—During the stage of invasion, accumulative stage, of general bacteremia, meningococci may be present in the urine in considerable numbers, even before the active symptoms of meningitis have set in. During the acute stage of meningitis, meningococci can be readily demonstrated in the urine of many cases. As the disease progresses, either to recovery or to the subacute or chronic stage, the meningococci disappear. In the complication of meningococcic pyelitis, the meningococcus can be isolated from the urine.

Meningococci in Other Suppurative Foci in Meningitis.—Otitis media, purulent; purulent joint effusions; pericardium in suppurative pericarditis; pleura and spleen (quoted by McKenzie and Martin); sputum, in meningococcic pneumonia, which occurs as a complication or occasionally precedes the attack of meningitis.

GENERAL REMARKS ON CURATIVE TREATMENT

Epidemic meningitis begins as a primary blood infection which later becomes localized in the cerebrospinal meninges as meningitis. The lining of the ventricles is also affected. The symptom-complex resulting consists of symptoms of sepsis from the purulent inflammation, symptoms of the meningeal irritation and pressure symptoms from the collection of exudate in the ventricles and subarachnoid space. In treating cases of meningitis, these facts must be borne in mind; to treat the sepsis on the one hand by serum injection into the meninges and general circulation, and, on the other hand, to treat the equally important hydrocephalic pressure symptoms by lumbar puncture with withdrawal of cerebrospinal fluid. The condition of sepsis, either general hematogenous or in

the meninges, kills many during the first few days of the illness. The hydrocephalus, with its pressure symptoms, kills many in the subacute and chronic stages. Both conditions must be treated energetically and promptly as they arise. The wide range of mortality, occurring in different sections during the same epidemic, may to a very great extent be explained by the character of the treatment employed.

It may be accepted as a general rule that, unless the meningitis serum be introduced directly into the meninges in epidemic meningitis, the course of the local lesions will be little affected. During the first or general bacteremic stage of the disease the subcutaneous or intravenous injection of serum offers good results. The disease, however, is not usually diagnosed until the second or meningitic stage sets in.

Serum Treatment of First or Premeningitic Stage (Accumulative Stage) (General Bacteremia).—The stage of the disease is rarely diagnosed. The condition is one of general meningococcus sepsis, before meningitis has set in. The serum, therefore, must be introduced into the general circulation, by subcutaneous or intravenous injection. Large doses, up to 100 cc., may be so administered. If treatment is begun early enough, it may be possible to abort the infection before it has localized in the meninges. Likewise, the severe fulminating cases are favorably influenced and the rapidly fatal course may be prevented. The recognition of the pathology of the infection in these cases is especially important. It must be remembered, first, that one is dealing with a general sepsis, similar to sepsis from other bacteria and that the general circulation must be treated; second, that this has a rapid transition into the second or meningitic stage and that the site for serum injection must then be changed to the meninges.

As previously described, this stage is usually accompanied by a collection of clear fluid within the ventricles and subarachnoid space. As the disease progresses the quantity of fluid increases, giving some cerebral symptoms previous to the transition to the next stage. Lumbar puncture, with simple removal of fluid, helps considerably and tends to prevent the further progression of the disease. If there be any question at the time of puncture as to whether the infection has already extended to the meninges it is wise to inject the serum into the meninges, since in this way not only is the local inflammation benefited, but also the general sepsis through the rapid secretion of the serum into the general circulation.

In dealing with an active case of meningitis, it is important to remember that the following conditions must be treated: (1) Local suppurative meningitic inflammation; (2) general

sepsis; (3) hydrocephalus; (4) general constitutional symptoms.

Each measure is equally important and influences the ultimate outcome.

SERUM TREATMENT OF MENINGITIS

The wonderful results with serum treatment of epidemic meningitis are due to two causes: (1) The proper production of highly potent polyvalent immune serum; (2) The recognition of the fact that in active meningitis the serum must be introduced subdurally, directly into the meninges. Subcutaneous or intravenous administration alone is practically worthless during the active meningitis.

Sera that are injected into the general circulation are secreted into the cerebrospinal fluid only in small quantities and very slowly. Thus, in focal infections of the central nervous system, when it is desired to introduce large doses of the remedial serum, it is necessary to inject the serum directly into the subarachnoid space. This is especially important in using the antimeningitis serum, which benefits to a very great extent by its local opsonic action.

The subarachnoid injection of serum can be employed in all pyogenic infections of the central nervous system, such as those caused by the meningococcus, bacillus influenza, streptococcus, pneumococcus and tubercle bacillus. The best results have been obtained clinically and experimentally in epidemic meningitis, the reason being that this infection is local, even though primarily they may be of hematogenous origin. The focus of infection is thus directly reached. The opposite, however, is the case with the pyogenic infections, produced by the streptococcus, pneumococcus, tubercle bacillus and other organisms. These are almost always secondary to the primary foci, and tuberculous meningitis is frequently accompanied by a general miliary tuberculosis.

METHOD OF INJECTING THE ANTIMENINGITIS SERUM

1. Syringe method: Most workers have injected the antimeningitis serum by using a syringe, which is attached to the needle, after the cerebrospinal fluid has been withdrawn, and the serum slowly injected.

2. Gravity method: This method consists in allowing the serum to run in by gravity, using a funnel and tube arrangement.

The injection of serum is usually accompanied by severe, at times agonizing, pain, referred to any or all of the region mentioned. It occurs as soon as the introduction of serum is begun and usually subsides to a very great extent at the end of the operation. Sometimes, however, it continues severe and unabated for hours after.

It has been suggested that the pain was due to the injection of cold serum and that preliminary warming of the serum to body temperature would prevent it. While cold serum appears to aggravate the pain, it is certainly not the chief cause, since similar symptoms are evident regularly on injecting warm serum. The symptoms are most likely due to stretching and local irritation of the nerve roots at the site of puncture.

The effect on the blood-pressure is constant on withdrawing fluid by lumbar puncture in meningitis. Most often there is a drop in blood-pressure, occasionally quite large, especially on withdrawal of large quantities of fluid. My ordinary procedure in an adult case, beginning with an average blood-pressure of 110 mm. of mercury, is to stop the further withdrawal of fluid if there is a moderate drop in blood-pressure, for example of 10 mm. of mercury; in children, 5 mm. Occasionally the blood-pressure begins to drop very quickly as soon as the removal of the fluid is begun. The blood-pressure then is a guide indicating how rapidly or slowly the fluid may be withdrawn. In other cases there is no change in blood-pressure, or there may even be a rise, on removing the fluid. In such cases one can withdraw as much fluid as possible, usually until the cerebrospinal fluid pressure is normal, this being roughly estimated by counting the drops of fluid as they flow from the needle. One drop of fluid every three to five seconds corresponds to a normal pressure.

After a withdrawal of a suitable quantity of cerebrospinal fluid, the serum is ready to be injected. As usual, the serum is warmed to body temperature and then injected slowly, by the gravity method preferably, or by syringe. I much prefer the gravity method of injecting the serum. It has many advantages and few of the disadvantages of the syringe method. As a rule, as soon as the injection of the serum is begun, the blood-pressure drops and continues to drop steadily. Reasoning by the old method of injecting serum, one would expect a rise in blood-pressure; this, however, is rarely the case. As stated, in the great majority of cases when the injection of serum into the subarachnoid space is begun, the blood-pressure drops and continues dropping steadily as the larger quantity of serum is injected. After there has been a material drop, for example of 20 to 30 mm. of mercury, the blood-pressure begins to drop relatively much faster if more serum is injected. Thus, if an injection of 15 cc. of serum causes a drop of 20 mm. of mercury in blood-pressure, injecting only a few more centimeters of serum may cause a sudden drop of 40 more mm. of mercury, making a total drop of 60 mm. or more. In one robust adult whom

I treated there was a drop of 30 mm. of mercury after injecting only 12 cc. of serum. His blood-pressure at one bound dropped 30 mm. more, making a total drop of 60 mm. His clinical signs at this time did not indicate shock; the pulse was fair but rapid, the color was good, the breathing was shallow and a little irregular. I decided, however, to watch him for a time. A few minutes later he suddenly stopped breathing, then his heart stopped. Immediate active treatment gave instant response. It is easy to see how these patients who have had a large drop in blood-pressure with not much other evidence of shock may thus suddenly succumb either during or after the injection.

If uncontrolled by blood-pressure observations during the operation, the quantity of serum injected should not be larger than the amount of cerebrospinal fluid withdrawn. The average doses are as follows:

1 to 5 years.....	3 to 12 cc.....	12 cc.
5 to 10 years.....	5 to 15 cc.....	15 cc.
10 to 15 years.....	10 to 20 cc.....	20 cc.
15 to 20 years.....	15 to 25 cc.....	30 cc.
20 years and over	20 to 30 cc.....	40 cc.

Shock during injection accompanied by the fall in blood-pressure is due principally to (1) undue pressure excited in the injection of serum; (2) too rapid injection; (3) injection of too large a quantity of serum.

Repeating Doses of Serum.—It has been advocated that the serum be arbitrarily injected daily for the first four days, later being guided by the clinical condition of the patient. In bad cases, it has been recommended by many, that the patient be injected at first twice daily. In view of the demonstration of considerable depression on injecting serum, it is apparent that administering serum oftener than once every 24 hours would be very undesirable. Only on very rare occasions have I injected oftener than once in 18 to 24 hours; the special indication was in cases with very thick exudate, where one could inject only very small quantities of serum at a time, under pressure; or in very bad fulminating cases. The arbitrary periods established for repeating injections, in a general way, are efficient; most cases requiring daily treatments for the first few injections at least. It is desirable, however, to be guided by more accurate indications. There are two main guides: (1) The findings in the cerebrospinal fluid at each pressure; (2) the clinical condition of the patient.

1. During the course of treatment with serum the cerebrospinal fluid has a tendency to clear up macroscopically as the disease improves. While this is the rule in most instances, at times it is very misleading since the cerebrospinal fluid will become more turbid and

still the patient be recovering. This happens in cases that have only slightly turbid fluid before the injection of serum and is due to the excitation of leukocytosis by the serum with resulting cloudy fluids. I have seen the same condition occur when serum was injected in serous meningitis, and in polioencephalitis, under mistaken diagnosis, where a subsequent puncture gave a turbid fluid containing many pus cells but no bacteria as demonstrated in spread or culture (in other words, corresponding to the condition of aseptic meningitis).

Accurate information is obtained by microscopic examination of the cerebrospinal fluid, especially in the direct stained smear of the sediment. The smear will indicate, in a general way, the total number of bacteria and, most important, will show the relation of the bacteria to the leukocytes. In fresh cases, and in acute cases not responding to treatment, the bacteria are principally extracellular and numerous. As a case responds, whether under serum treatment or spontaneously, the organisms diminish in number and become intracellular, frequently appearing clumped together and failing to grow in culture. Remembering that one of the principal functions of the antimeningitis serum is its local opsonic action to stimulate the leukocytes to pick up and digest the bacteria, one can see how much information is imparted by studying not only the number of organisms but their relation to the leukocytes. Thus, where one finds many organisms in spread, the indication is to tap the following day. If the organisms are few in number, but extracellular, again the indication is to tap the next day even if the clinical condition of the patient is apparently good and temperature is down. If the organisms are few in number and intracellular one should then be guided more by the clinical condition of the patient. If septic symptoms continue, the dose should again be repeated the following day since it is possible that some extracellular organisms may have been overlooked. If, however, clinical signs of sepsis are improved and only a few intracellular organisms be found, then one may wait 24 hours or longer, depending upon the clinical course of the disease.

2. The clinical condition alone as an indication for repeating the doses of serum cannot be depended upon since at times one sees aggravation of the disease, as evidenced by the condition of the cerebrospinal fluid, even when the clinical condition is apparently improved and temperature is down. The clinical course is, therefore, only of value when taken in conjunction with the examination of the cerebrospinal fluid. I have repeatedly punctured patients at a time when the clinical condition was apparently much improved, being guided by the

examination of the cerebrospinal fluid obtained at the previous puncture, and have found a serious condition on examining the cerebrospinal fluid.

In treating the average case of moderate severity, being guided by the conditions just discussed, one usually has to puncture the patient daily for the first three days, then on alternate days, depending upon the course of the disease. Some cases require daily consecutive injections for six or more days. The total number of injections to be given in any individual case is difficult to determine. The average case requires from 3 to 5 or 6 injections, if treatment is begun during the acute stage; the subacute and chronic cases require many more treatments.

During the treatment of the severe forms of meningitis it may be desirable, if the signs of general sepsis are marked and persist and if only a moderate quantity of serum can be introduced into the subarachnoid space, to inject, in addition to the spinal treatment, 20 to 40 to 60 to 100 cc. of serum, either subcutaneously or intravenously.

CASES WITH VERY THICK PLASTIC EXUDATE

Cases with thick plastic exudate are usually very severe and are apt to terminate fatally. The exudate is too thick to flow through the needle and the injection of serum under pressure is very dangerous. Sometimes the flow of the exudate may be started by gently irrigating with sterile warm water injected under pressure. Two needles may be introduced into the spine at different levels, the water injected at the upper level and draining out at the lower. If the flow of fluid cannot be started, or if very little fluid can be obtained, one is warranted in taking the risk of injecting small quantities of serum under pressure, repeating the treatment, if necessary, at 8 to 12 hour intervals.

Direct cisternal puncture, similar to lumbar spinal puncture, for serum injection has been used in cases of this kind with complete success by different workers and in Kansas City by Stookey, Elliott, and Teachenor.

SERUM TREATMENT OF CASES WITH DRY CANAL

Some cases respond to serum treatment by an apparent drying up of the whole canal, the cerebrospinal fluid becoming very scanty. In many cases there is a coincident improvement in the local meningeal symptoms and the general constitutional symptoms. In some cases, however, toxemia and signs of local and general sepsis persist. Cisternal drainage followed by serum injection is ideal for these cases. It is very important, however, to differentiate this condition of spinal block from the dry canal

one meets in posterior basic meningitis in which there is shutting off of the communication between the ventricles and subarachnoid space. Intraspinal serum treatment in the latter condition is useless and very dangerous.

WHEN TO DISCONTINUE THE FURTHER INJECTION OF SERUM

The question of judgment is probably the most important element, determining the course to pursue in repeating the injections of serum.

The indications to stop the further injections of serum are the same as those indicating an injection, (1) bacteriological examination of the cerebrospinal fluid; (2) clinical condition of the patient.

1. *Cerebrospinal Fluid.*—These changes have already been described, consisting in most instances of a clearing up of the fluid and a total disappearance or diminution of the bacteria, which are found principally to be intracellular.

2. *Clinical Condition of the Patient.*—Extremely important information is obtained by noting the patient's appearance and general symptoms. His mind is clear, he is cheerful, no longer apathetic, irritable, hypersensitive or delirious. His neck and spine may still be very stiff but his headache is gone, he feels better, his color and skin look more normal and his appetite returns. Temperature drops to normal and loses its irregularity. Fever, however, as previously described is a very uncertain guide.

RELIEF OF HYDROCEPHALUS IN ACUTE STAGE

During the course of serum treatment of the acute stage of epidemic meningitis, the hydrocephalus (excess of exudate in the cerebrospinal fluid) is relieved by the withdrawal of the fluid by lumbar puncture before the serum is injected, thereby treating the hydrocephalus and sepsis at the same time. It is important to arrange to perform the lumbar puncture at such time during the day when hydrocephalic pressure symptoms are most marked. In treating many hospital cases I have been in the habit of carefully watching each patient during the day and have attempted to select the time when treatment would do most good, rather than choose any arbitrary time each day for the treatment.

Occasionally, severe, acute, alarming hydrocephalic pressure symptoms develop a few hours after serum treatment; the patient grows more stuporous or delirious, the breathing becomes irregular and stertorous, the pupils dilate and Macewen's sign becomes very pronounced. These symptoms should be carefully watched. Not infrequently they subside after a few hours, other times they grow rapidly worse, cause convulsions and even death. The patient should be studied carefully and if necessary

lumbar puncture with simple withdrawal of fluid performed. Hydrocephalic pressure symptoms may develop while the local suppurative condition improves so that the cerebrospinal fluid may contain only a few bacteria or be entirely sterile. For example, a patient who has had daily serum treatment for three days, with considerable improvement in the cerebrospinal fluid and in his clinical condition, may, on the following day, suddenly develop pressure symptoms while temperature may remain normal and the neck rigidity and Kernig's sign be less pronounced. The immediate indication, if symptoms so warrant, is to puncture and relieve pressure by removing fluid and, if necessary, follow with a dose of serum. Early recognition of pressure symptoms and their prompt relief during the acute stage of meningitis tend to shorten the course of the disease and to prevent the dangerous subacute and chronic stages of meningitis.

To recapitulate, serum treatment should be actively administered during the first few days of the illness and kept up until bacteria disappear from the cerebrospinal fluid. If treatment is stopped too soon there is danger of a subacute or chronic condition complicating. After the patient has been well saturated with serum, administered by daily injection for 2, 3, 4 or more doses, with considerable improvement in the local suppurative condition, one should be alertly on the watch for pressure symptoms and, if necessary, relieve by puncture.

In cases which show a complete disappearance of septic symptoms, after the first few days of serum treatment (even though a few intracellular meningococci persist in the cerebrospinal fluid) while pressure symptoms are pronounced, one may tap with simple removal of fluid one day and the next day, if necessary, repeat the treatment, this time also injecting a small dose of serum. Cases with pressure symptoms from large quantities of cerebrospinal fluid may have to be treated in this way for a week or longer. If a few organisms persist in the cerebrospinal fluid but cause no septic phenomena serum may be administered only on alternate days.

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FAVUS OF THE SCALP*

REPORT OF CASES

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Favus, often called honeycomb ringworm and *tinea favosa*, is a disease not often found in the State of Missouri or the Middle West. Unfortunately, the disease often escapes detection,



Fig. 1. Favus of scalp with marked alopecia and atrophy. (10 years' duration.)

especially in the early stages, so that the average case when first observed is usually well advanced.

From the standpoint of public health favus is one of the most important of the mycotic or fungus infections because of its contagiousness and its chronicity. Routine examination for the *Achorion schönleinii* in stubborn scalp conditions, sometimes mistaken for seborrheic dermatitis or ordinary ringworm (*tinea capitis*), would probably bring to light many cases that go undiagnosed. This statement is especially applicable to the country districts where favus is more common than in the large cities.

Tinea favosa may be defined as a chronic contagious disease caused by a vegetable parasite, characterized by a peculiar cup-shaped crusting and terminating in atrophy and scar formation (permanent alopecia). The majority of the cases in Missouri occur in the poor, ill-fed, careless and dirty children in country towns. Thus, the origin of the old French name for the disease, *Teigne du Pauvre*, ringworm of the poor. It is very rarely that we see favus originating in the large cities.

In the United States over 75 per cent of the cases are observed in immigrants who escape detection at the ports of entry and are admitted to this country with the disease in its quiescent stage (spores). Favus is very uncommon in native Americans especially in those living in

*From the Department of Dermatology and Syphilology, St. Mary's Dispensary.

inland towns and cities. The four cases described in this report all occurred in children born in Missouri of native American parents.

Immigrant cases seen in the clinics of New York, Boston, Philadelphia and other seaports are usually found in people from Southern France, Northern Italy, Russia, Poland, Scotland and Austria.

Favus is not likely to originate in children over 15. The majority of the cases are found in the 5-15 age group. Adult age seems to confer an immunity to the disease, a fact which applies more or less to other types of ringworm of the scalp. Unfortunately, there is no tendency to spontaneous recovery and the condition if untreated continues until all the hair follicles are destroyed. In the latter event recovery may take place from 5 to 15 years after the onset, not, however, without permanent damage.

The disease does not appear to be as contagious as the ordinary types of ringworm so commonly seen in children (*Microsporon audouini*). The modes of infection may be from man to man or from animals to man. Animal infection is rare but occasionally occurs, especially in France. Cases have been traced to the cat, dog, mouse, rabbit, cow and horse. Direct contact is the common means of transfer but indirect contact often is responsible (infected caps and other headgear, combs, brushes and towels).

While the scalp is the usual site of the disease and the primary focus, the glabrous (non-hairy) skin may occasionally be involved, sometimes extensively. Nail involvement is often secondary and is characterized by stubbornness to treatment. On the skin, the fungi first attack the lanugo hairs. In severe and long standing scalp cases the surrounding skin often

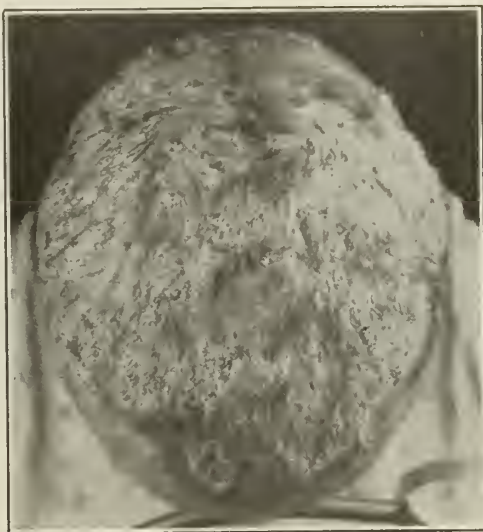


Fig. 3. Well advanced favus of scalp in young girl with typical mortar-like masses of crusts. (8 years' duration.)

shows some evidence of the disease, a condition present in Case No. 4.

Favus of the scalp begins as a localized superficial inflammation followed by slight scaling. Yellow crusts then form about the follicular orifices, later becoming characteristically cup-shaped and closely adherent. These crusts (scutula) lie in depressions in the skin formed by pressure and when they are removed with a forceps they reveal small depressed or excavated areas. Usually each crust or disc is pierced by a hair. In the course of the disease the crusts become thick and confluent and form the so-called mortar-like masses. The crusts consist of mycelia, spores and debris. The hairs become lusterless (a diagnostic hint), brittle, split off or fall out. The parasites are found in the cortex as well as the medulla and gradually weaken the hairs as the disease progresses. Microscopically the hairs are found to contain numerous mycelia, often in branched formation, and long rows of spores. The alopecia of favus, a permanent and very embarrassing end result, is caused by the mechanical pressure of the parasite on the papillae of the skin. The scar formation which also finally results is due to a rarefaction of the fibrous tissue bundles in the corium. Last but not least mention must be made of the well known mousy odor detected in a favus scalp, sometimes also likened to the odor of cat's urine or musty straw. This characteristic odor is not present in treated cases.

The specific cause of favus is a vegetable parasite, the *Achorion schönleinii*, which is responsible for about 95 per cent of human favus. There are about four animal species; the most important of them is the *Achorion quinck-*

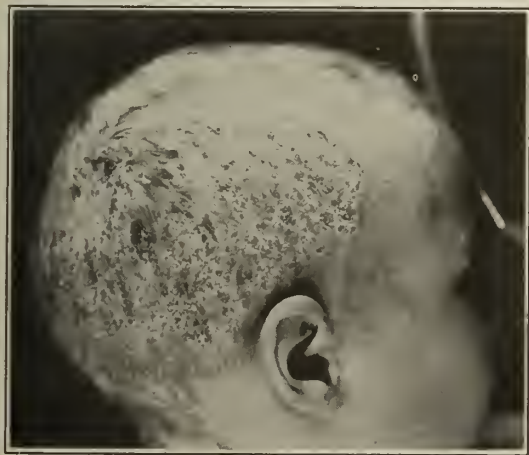


Fig. 2. Favus of scalp in male child aged 7 with typical yellowish cup-shaped crusts. (3 years' duration.)

When purchasing tickets to Springfield ask the ticket agent for a receipt or certificate. Deposit with the secretary at Springfield to obtain one-half fare on return trip.

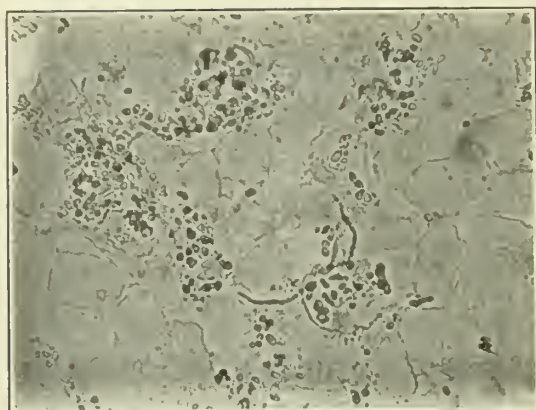


Fig. 4. Spores and mycelial threads of *Achiorion schönleini* obtained from crusts in *knit cap* worn by Case 4.

eanum. The parasitic nature of the disease was first discovered in 1839 by Johann Lukas Schönlein (1793-1864), the founder of modern clinical teaching in Germany. The organism was named by Robert Remak in 1845 who produced the disease experimentally and proved Schönlein's theory. The fungi may be easily grown on Sabouraud's peptone, glucose or maltose agar, forming a waxy, spongy growth. The mycelia and spores may be easily detected in crusts and hairs by making potassium hydrate preparations and using the high power lens of the microscope.

Favus is intractable unless X-ray therapy (epilation) is used. It is certainly the method of choice. By using MacKee's single dose method, the hair will begin to fall out in from 2 to 3 weeks. New growth will occur in about 8 weeks and the scalp will be full grown in about 6 months. During treatment the child should be kept out of school and not returned until the scalp is spore free. Other methods of treatment include such irritants as chrysarobin and iodine crystals, thallium acetate, vaccines and fever therapy, but X-ray epilation by a skilled operator is certainly the shortest and most successful method of cure. All contacts should be examined as they may be found to be favus carriers.

REPORT OF CASES

Case 1. M. T., female, aged 17, was born and raised near Vanduser, Missouri, where the infection was first acquired. The scalp condition was first noticed at the age of 7. Examination of the scalp reveals a far advanced case of favus with marked atrophy and alopecia, more marked at the crown. At the periphery are the typical thick yellowish crusts with depressed centers. Typical mousy odor is present. Microscopical examination of the crusts shows myriads of the typical mycelia and spores. Implantation on glucose agar showed typical growth in 8 days.

Case 2. H. T., a brother of M. T., aged 7, has had the disease for 3 years. The yellowish crusts in this case are very typical and show the cup-like discs.

Hair thin and lusterless with moderate alopecia. Microscopical examination positive for *Achiorion schönleini*.

Case 3. D. T., aged 8, female, belonging to the same family had had the disease for one year. The crown of the scalp is covered with a diffuse, thin flaky scaling having a yellowish tinge. There is moderate inflammation present. The hair at the crown is thin and brittle. No typical crusts or atrophy present. This is an early case. Microscopical examination positive for *Achiorion schönleini*.

Case 4. R. L., female, aged 12, living in St. Louis for the past year but born and raised on a farm in Southeast Missouri, has had the infection for the past 8 years. There is marked alopecia, scarring and atrophy with thick yellow crusts scattered throughout the scalp. There is a scaly, slightly inflammatory dermatitis on the back of the neck and behind the ears. A married sister aged 24 had the disease at the age of 16 but a spontaneous cure took place after 4 years. Microscopical examination positive for *Achiorion schönleini*.

CONCLUSIONS

1. Favus is a rare type of fungus infection in Missouri but sporadic cases do occur from time to time.
2. The scalp is the usual site of the infection but the skin and nails may also be involved.
3. Early diagnosis is imperative from the standpoint of prevention and to minimize the serious damage that occurs in old untreated cases. The suspected crusts or hairs are soaked for one half hour in a few drops of 20 per cent potassium hydroxid solution and then examined under the high power lens of the microscope for the typical mycelial threads and spores which are usually present in abundance.
4. Epilation with the X-ray in skilled hands offers the only sure method of cure in favus of the scalp.

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CONSIDERATIONS IN THE MANAGEMENT OF JAUNDICE AND ASCITES*¹

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Jaundice is one of the most striking of the phenomena which accompany disease. It was not only recognized by the ancient Greek physicians, but yellow bile and black bile became two of the four humors of the Galenical physiology. We still have relics of the latter in the popular use of such adjectives as choleric, bilious and melancholic in describing personal traits. Thus it is seen that even at this early date, views regarding the cause and treatment of diseases of the liver and biliary tract, and

*Read at the 71st Annual Meeting of the Missouri State Medical Association, Columbia, May 14-18, 1928.

1. From the Division of Medicine, The Mayo Clinic and The Mayo Foundation.

of jaundice in particular, were directly dependent on the current physiologic ideas concerning the origin and secretion of bile. This attitude has not changed, and today the clinician still looks to the physiologist for assistance and guidance.

In recent years this field of medicine has been greatly clarified. It has been made plain that jaundice is due to the presence of bile pigment in the blood with a resultant staining of the skin, conjunctiva, mucous membranes, and as a rule, the urine. This has served to emphasize the point that jaundice is a symptom and not a separate disease entity. Instead of a single entity there are, from both a physiologic and a clinical standpoint, three different types of jaundice to consider—the hemolytic, the hepatic and the obstructive or biliary.

HEMOLYTIC JAUNDICE

The physiologic studies of Virchow, Whipple, McNee, Mann, Rich and their associates have shown clearly that bilirubin may be formed outside the liver. Bollman and Mann have shown that jaundice develops in dogs at approximately the same rate after the liver is removed as it does after the hepatic ducts are ligated. These experiments, therefore, furnish a sound physiologic basis for the clinical recognition of hemolytic jaundice as a separate disease entity. The clinical picture of this condition is well recognized. The most striking feature is that of long-continued icterus of moderate intensity without the malaise, pruritus, or bradycardia so often noted with obstructive or hepatic jaundice. In other words, the patients are more jaundiced than sick. In the congenital type there is often a history of a familial tendency to the disease, while in the acquired type there may be a history of infection, such as malaria or exposure to various chemicals. The spleen is enlarged and moderate anemia is usually present. The urine contains urobilin and urobilinogen while the stools are highly colored. Pathognomonic laboratory observations are the diminished resistance of the erythrocytes to hemolysis by a hypotonic solution of sodium chloride and the presence of many reticulated red cells. The serum bilirubin is increased and gives an indirect van den Bergh reaction. In pernicious anemia and in hemolytic jaundice the elevation of the serum bilirubin must be regarded as an index of the intensity of the destruction of the red blood cells and not as a sign of hepatic injury.

The indirect van den Bergh reaction has diagnostic value in a case of hemolytic jaundice. The blood normally contains a trace of bilirubin. When treated with the van den Bergh

reagent, however, there is no change in the serum and the pink color characteristic of the test only appears after the addition of alcohol—that is, the reaction is indirect. Thus in hemolytic jaundice, in which there is a speeding up of the normal process of destruction of blood with too rapid formation of bilirubin, this normal indirect van den Bergh reaction is obtained. When bilirubin is acted on by the liver, as in its excretion into the bile, it is so changed as to be more sensitive to the action of the van den Bergh reagent. When the latter is added to bile there is an immediate reaction and the characteristic violet color appears. This is the so-called direct reaction, given not only by bile but by the blood serum in cases of obstructive jaundice or jaundice of hepatic origin. In consequence the presence of an indirect van den Bergh reaction in a case of jaundice is a valuable aid in the differential diagnosis of hemolytic icterus. The van den Bergh reaction, however, cannot be used to distinguish between hepatic and obstructive jaundice.

The treatment of hemolytic jaundice is still pre-eminently a surgical problem. Mann and his associates have shown in dogs the normal action of the spleen in bilirubin formation. If one examines the blood in hemolytic icterus a greater amount of bilirubin is found in the blood from the splenic vein than is present in the splenic artery. This indicates that the spleen is active in the destruction of blood and in the formation of bilirubin, and furnishes a physiologic basis for its removal when there is overactivity of this process. Splenectomy offers such lasting and satisfactory benefits, particularly in the young adult, that there is little gain in delay. An additional argument for early operation is the observation of Giffin that gallstones were present in 58 per cent. of a series of cases studied by him. These stones are characteristically the small black jackstones composed of nearly pure bilirubin. They apparently are due to the marked increase in the excretion of the bile pigment which is present in hemolytic jaundice, and the danger of formation of stones with the development of secondary obstruction to the biliary tract is an argument for early operation in such cases. If the common duct is blocked and obstructive jaundice becomes superimposed on a hemolytic icterus diagnosis is less simple, for the former increases the resistance of the erythrocytes and produces a direct van den Bergh reaction which masks the laboratory findings ordinarily sought in hemolytic jaundice. The large spleen and the clinical history, however, usually serve to indicate the true condition.

HEPATIC JAUNDICE

In chronic nephritis the kidney is unable to excrete urea and other waste products as fast as they are formed and in consequence they accumulate in the blood stream. An analogy may well be drawn between the excretion of urea by the kidney and that of bilirubin by the liver. We may recognize then a form of jaundice of hepatic origin due to an inability of the hepatic cells properly to excrete the bile pigment. This would correspond to the "jaundice by suppression" of the earlier writers.

The most common form of this hepatic jaundice is the acute infectious, commonly called catarrhal. These cases are usually sporadic but Blumer has recently emphasized their frequent appearance in epidemic form. Views regarding the etiology of this condition have changed considerably during the last few years. Although there may be some catarrhal changes in the ducts, more emphasis is being placed on the changes in the polygonal hepatic cells. Such cases are well known. The symptoms usually begin with malaise, anorexia, nausea, and a general feeling of weakness similar to that seen in other types of infection such as influenza. These prodromal symptoms are soon followed by jaundice, pruritus, and the remainder of the symptoms that make up the typical picture. Fortunately the condition is ordinarily of only moderate severity and after a week or two clears up spontaneously. The milder saline laxatives, or possibly a course of duodenal lavage may be of benefit, particularly in hastening the recovery process after the flow of bile has once been reestablished. As pointed out by Wilhelm, duodenal drainage as a therapeutic measure likewise seems to be of value in those cases of mild jaundice, occasionally seen in syphilitic cases following vigorous treatments with arsphenamine. It should be remembered, however, that the so-called postarsphenamine jaundice represents only one variety of jaundice. O'Leary has recently emphasized the fact that distinction must be made between several varieties of syphilitic lesions of the liver. Syphilitic hepatitis with jaundice in particular may require active antisymphilitic measures. Even here, mercury and the iodides should be given a thorough trial before more vigorous therapeutic measures are used. Evidence of hepatic involvement should ordinarily be considered an indication for caution in the choice of therapeutic procedures.

The diagnosis of a case of acute jaundice of hepatic origin usually is relatively simple. Cases of subacute or chronic hepatitis with jaundice of several months' duration may, however, be puzzling. The same is true of the

nonobstructive type of biliary cirrhosis. These cases, however, should not be confused with those of obstructive jaundice for benefit is not derived from surgical procedures. At the same time the operative risk is high because of the injury to the liver and the danger of postoperative hemorrhage. Here too, duodenal drainage is of diagnostic value and the finding on repeated drainage of dilute bile-stained fluid, frequently in large amounts, is evidence against obstructive jaundice and for hepatitis. Returning to the analogy between the liver and kidney, this dilute bile may be compared to the dilute urine noted in cases of chronic nephritis after the loss of the concentrating ability of the kidney.

OBSTRUCTIVE JAUNDICE

The first type of jaundice to be clearly recognized was that due to obstruction to the biliary passage outside the liver. Saunders (1795), one of the first presidents of the Royal College of Physicians of London, reported the experimental production of jaundice in a dog by the ligation of the hepatic ducts. He noted that the blood serum was bile-stained two hours after the ligation. Wickham Legg (1880) stated that jaundice did not become apparent for from forty-eight to seventy-two hours after ligation of the common bile duct in dogs. He noted the discrepancy between his results and those of Saunders, but approximately fifty years elapsed before Mann repeated both series of experiments and pointed out that the difference in time was due to the presence or absence of the gallbladder. The concentrating action of the latter served to delay the development of an increased pressure within the ducts and so the appearance of systemic icterus. This function of the gallbladder is also one of the chief factors in the present diagnostic use of cholecystography.

Most cases of obstructive jaundice fall into one of two groups: (1) obstruction due to stone, and (2) obstruction due to carcinoma either of the pancreas or of the biliary tract. The treatment of the first condition is obviously surgical. The various therapeutic measures suggested for the treatment of cholecystitis are designed to prevent the formation of stone or to provide temporary relief. Small stones occasionally may be passed naturally but such cases are the exception rather than the rule and in the presence of complete obstruction the surgeon should be consulted.

The surgeon can do little in the way of removing carcinoma of the pancreas, of the gallbladder or of the bile ducts. The latter cases tend to be rapidly fatal. Tumors of the head

of the pancreas, however, are notoriously slow in growing. In such cases a cholecystgastrostomy or cholecystenterostomy will relieve the biliary obstruction and permit the patient to die from the tumor rather than from the jaundice. Under these conditions the diagnosis and the preoperative management of the patient become of paramount importance.

The outstanding diagnostic feature in most cases of obstructive jaundice is the presence or absence of pain. Silent stones may be present in the common bile duct, and pain may occur in occasional cases of carcinoma of the pancreas. In the latter case the character and radiation of the pain is somewhat different from that due to stone. The associated phenomena, chills, fever, vomiting and so forth, are significant, but nevertheless subsidiary to the cardinal sign.

The associated clinical signs that have been put forward in this connection are many and varied. Much has been written regarding the size of the liver, but unless the metastatic nodules are so large as to be palpable on the surface this sign is of questionable value.

Since the time of Courvoisier much attention has been paid to the possible enlargement of the gallbladder in relation to obstruction at the head of the pancreas. The gallbladder and sometimes the stones within it may be palpable, nevertheless this is a field of diagnosis fraught with difficulties. The degree of obesity, the muscular relaxation of the patient, the possibility of confusion with a Riedel's lobe, or a tumor on the surface of the liver and its situation at or behind the margin, must all be considered. While Courvoisier's so-called law is not of universal diagnostic application, this observation is significant for the light it throws on the changes within the biliary tract. Counseller and McIndoe have recently investigated the changes in the caliber of the bile ducts by means of the method of celloidin injection and corrosion. By this means they were able to obtain casts of the biliary trees from a series of cases of obstructive jaundice. In cases of cholecystitis or cholangitis there was moderate dilatation of the larger ducts, but the associated fibrosis seemed to protect the liver in part from the effects of the obstruction. In cases of obstruction due to carcinoma of the head of the pancreas, on the other hand, there was no such protection and there was marked dilatation of the whole biliary tree, a condition which they have termed hydrohepatosis. In this sense then Courvoisier's law can be said to apply not only to the gallbladder but to the whole biliary tree. These observations also emphasize the point that if operation is indicated for the relief of obstructive jaundice it

should be done as early as possible before the liver has become too severely injured.

PREOPERATIVE CARE

Several factors enter into the selection of a time for operation. Jaundice markedly increases the operative risk. Prolonged observation is necessary to decide the course of a case with jaundice on clinical grounds alone. As jaundice develops bile pigment accumulates in the serum before there is marked staining of the skin or mucous membranes. Similarly the bilirubin often leaves the blood stream long before the last traces leave the skin. The study of the serum bilirubin, therefore, is a much more sensitive index to the degree and course of jaundice than is the appearance of the patient. Readings taken approximately every other day will soon show whether the jaundice is receding, increasing, or stationary. If the serum bilirubin is descending operation can well be postponed until the jaundice clears. If the serum bilirubin is increasing then operation should be delayed at least until the patient becomes adjusted to the higher level (Judd). If the serum bilirubin level is stationary then the final decision should be made on the basis of the associated clinical data.

A stationary serum bilirubin level is suggestive of complete obstruction to the common bile duct. The completeness of obstruction may be judged in numerous ways. Fluctuations in the color of the stools or in the amount of urobilin or urobilinogen in the urine indicates the intermittent escape of bile. Complete acholia, or bilirubinuria without urobilinuria suggest a complete obstruction. More satisfactory evidence regarding the patency of the common duct may be obtained by the use of the duodenal tube. Duodenal drainage not only discloses whether bile is entering the intestine, but it affords valuable evidence regarding the quality and concentration of that bile. A series of four or five careful duodenal drainages may be conclusive with regard to the character of the biliary obstruction.

When the indications for operation are once established much can still be done in the preoperative preparation of the patient. Walters has stressed the danger of postoperative hemorrhage in the presence of jaundice and the grave import of a prolonged coagulation time. He recommended the intravenous administration of calcium chloride for bringing the coagulation time back to normal. Transfusion is a valuable measure when calcium is unsuccessful. Use may also be made of the spontaneous variations in the coagulation time. Manifold experimental studies have shown the importance of an adequate glycogen reserve in in-

creasing the resistance of the liver to various toxic substances. A diet rich in carbohydrate and a sufficient intake of fluid and salt places the patient in the best possible condition to withstand the shock of operation. Mention should also be made of the intravenous use of sodium chloride and glucose solutions in post-operative shock and so forth. The care and interest of the physician in these cases should not be severed by the surgeon's knife.

ASCITES

Ascites is quite as striking a symptom in its way as is jaundice. Like jaundice it is a cardinal sign of disease of the liver although it may be due also to other causes. Cabot lists the common causes of ascites in order of frequency as cardiac insufficiency, renal disease, hepatic cirrhosis, and peritoneal tuberculosis; intestinal obstruction, ovarian tumors, and malignant disease involving the abdominal lymph nodes, peritoneum, or liver were next in order. A consideration of these various conditions shows the effect of various types of physiologic disturbance in producing this condition.

Cardiac insufficiency with consequent venous stasis and back pressure not only produces chronic passive congestion of the liver but portal stasis with resultant transudation of fluids. As such the treatment of the ascites is primarily that of the underlying cardiac condition, and improvements in the two usually go hand in hand. French clinicians discuss the development of cirrhotic changes in the liver as a result of long standing chronic passive congestion under the name of cardiac cirrhosis. The "nutmeg liver" is characteristic of these cases, but the changes are rarely so severe of themselves as to cause symptoms. I have observed one case, that of a child with congenital tricuspid insufficiency, in which there was a true cardiac cirrhosis. In the usual case of this type, however, cardiac disease and portal cirrhosis are present together.

Inflammatory changes in the peritoneum will produce ascites. This may be due to peritoneal tuberculosis, a peritoneal carcinomatosis arising from any one of several organs, or to the chronic serositis known as Pick's or Concato's disease. Because of the association in these cases of peritonitis with changes in the various serous surfaces such as pleuritis, pericarditis, perihepatitis and so forth, they are perhaps better called "multiple serositis."

The ascites in cases of portal cirrhosis is ordinarily ascribed to the vascular obstruction produced by the fibrous tissue changes in the liver. The extent and significance of this obstruction have been particularly emphasized recently by McIndoe. He has studied the

vascular lesions of portal cirrhosis by injection and corrosion methods. The most striking change is the reduction in the total vascular bed. Not only is there reduction in the vascular supply to the organ as a whole, but the normal intrahepatic distribution of the blood stream is disturbed. The portal vessels more and more come to lie in the interlobular fibrous tissue and the nodules of hepatic tissue are cut off from the normal supply of portal blood. The connections with the hepatic artery are considerably disturbed but are not completely lost. It is not surprising that one finds evidence of functional insufficiency in an organ so severely injured. The extent of the block to the portal circulation is shown clinically by the development of a collateral circulation. McIndoe tried to measure this by injecting sodium chloride solution into the portal vein and determining the proportion of the fluid recovered from the hepatic vein and from collateral vessels. He found from 65 to 95 per cent of the fluid injected escaped through the collateral circulation, a striking demonstration of the extent of the portal obstruction. Under such conditions it is not surprising that the veins of the abdominal wall dilate and that esophageal and hemorrhoidal varices form. In fact it is surprising that a true caput medusae is so rarely seen. In seeking evidence of collateral circulation it should not be forgotten that dilated vessels may be found in the lumbar region as well as on the anterior abdominal wall.

These enlarged collateral vessels are important from the standpoint of prognosis as well as diagnosis. The back-pressure through the coronary vein of the stomach leads to the formation of esophageal varices. These seem particularly liable to erosion and rupture. In fact, as many patients suffering from portal cirrhosis die from such gastro-intestinal hemorrhages as die from hepatic insufficiency. Gastric hemorrhage is an equally serious accompaniment of splenic anemia or Banti's disease; in the latter splenectomy decreases but does not remove this danger.

The cause of the ascites in portal cirrhosis must still be considered an open problem. The portal obstruction is undoubtedly an important contributory factor, but is not the only one. The effects of medical treatment are too striking to be explained solely on the basis of restorative changes in the portal channels in the liver. The presence of 8 or 12 liters of fluid in the abdominal cavity will produce considerable venous congestion of itself, and the relief of this is apparently responsible for the diminution of the collateral circulation observed during treatment. Keith and Whelan

have shown that the diuretic action of merbaphen is due not only to a local action on the kidneys but to a general metabolic effect as well. Snell, Greene, and Rowntree have recently described the development of ascites in dogs after the ligation of the common bile duct in such animals. Bollman has been able to produce ascites at will by changes in the diet. On an exclusive meat diet ascites develops, to disappear on changing to a carbohydrate diet. These observations in particular emphasize the importance of nonvascular factors in the production of ascites.

Ascites places a tremendous burden on the patient in every sense of the term. The medical historian can tell a long story of the many and varied therapeutic measures that have been used at one time or another. At present the most efficient method for the medical control of ascites seems to be the combination of the old stand-bys, mercury, sal ammoniac and salts of niter. Rowntree, Keith, and Barrier have reported on the combined use of merbaphen and ammonium chloride together with the special low-salt, low-fluid diet advised by Keith, Smith and Whelan. This method will produce effective diuresis at some period in the majority of the cases of ascites due to portal cirrhosis and is of distinct value in many cases of ascites due to other causes.

The diet contains approximately 1 gm. of salt and only 800 c.c. of water. This rigid restriction may not be necessary for all patients, although it is in the more resistant ones. In any case, a diet low in fluids and basic ions, especially sodium, should be sought. Merbaphen alone has a diuretic action which, however, is not always maintained. A much more uniform diuresis is obtained by the simultaneous administration of ammonium chloride. Some patients seem to be resistant on beginning treatment; with persistence, however, there is eventual response. Other acid-forming salts may be substituted for the ammonium chloride. Ammonium nitrate is one of these and has the advantage of being better borne by the stomach. Calcium chloride or potassium chloride may also be tried. Euphyllin may sometimes make a satisfactory adjuvant.

With these methods the ascites may be satisfactorily controlled in the majority of cases of portal cirrhosis. In a number of cases the effect has seemingly been permanent and a moderate restriction of salt and water in the diet has sufficed to prevent the reaccumulation of the fluid. In others, dietary restriction supplemented by an occasional course of ammonium chloride and an injection of merbaphen at intervals has sufficed.

Less satisfactory results are obtained in the

more severe degrees of hepatic insufficiency. The development of hepatic toxemia, the so-called cholemia, is a frequent terminal event in portal cirrhosis. Patients with such toxemia do not respond to treatment even though they may have done well previously. Transient jaundice, the so-called "signal jaundice," may be one of the earliest symptoms in portal cirrhosis. After the development of ascites it usually is of grave prognostic import. The response to treatment is likewise decreased under such conditions.

COMMENT

An attempt has been made in this review to emphasize the close relationship between the current views regarding the cause and treatment of diseases of the liver and biliary tract and the current physiologic views concerning the function of the liver. The two necessarily go hand in hand. Recent advances in physiologic knowledge have permitted corresponding advances in methods of diagnosis and treatment. With further advances along physiologic lines we may hope for additional clinical improvement.

Mayo Clinic.

DISCUSSION

DR. LOUIS H. BEHRENS, St. Louis: In the series of jaundice types that Dr. Greene has called to our attention the hemolytic with splenomegaly of the familial variety interested me. I will confine my remarks to a very brief summary of seven cases occurring in three generations of one family that have been to me very interesting and so far as I can determine unusual.

Coming in almost daily contact over a period of years with several members of this family group, I noticed at times that as many as four at one time would be jaundiced, some remaining so for a longer time than others, viz., the father and four sons and daughter, all grown. Not being the family physician no advice was asked of me until about three years ago.

The daughter, aged about thirty, assumed an active phase of the disease, became weak, icteric, anemic and spleen enlarged. The blood showed rapid red cell destruction and splenectomy was hesitatingly decided on and a very large spleen was removed. After a rather stormy short period and another more prolonged convalescence the blood picture returned to near normal, the reticulated cell count lowered and fragility almost nil. She is now three years later apparently in perfect health. I was through the courtesy of Drs. Tupper and Soper permitted to observe this case.

In this family group there are fourteen grandchildren. About two years ago, a boy aged four was regarded by a pediatricist as anemic; in fact, since babyhood he was given much iron and arsenic plus green vegetable diet without permanent result. At four his symptoms increased alarmingly—weak, jaundice, anemic, spleen enlarged, fever, weight loss. Operation was advised and done and spleen weighing 400 grams was removed. His preoperative red cell count was 1,400,000, white increased, reticulated pronounced, also fragility; hemoglobin 30 per cent.

After twelve days postoperative the red cell count was 3,800,000, white lowered, hemoglobin 72 per cent.—really almost unbelievable result. The child now two years later appears normal. The past winter had an infection causing temporary kidney injury which has subsided.

The third case, aged seven, splenectomized, was another grandchild with a similar active (sudden) history whose recovery was equally spectacular and also is up to the present time normal in health and blood function.

So that of twenty-one of this interesting family group we have so far examined thirteen and find nine definitely of the type. Three have had spleens removed as an urgent necessity, three others have shown symptoms advising such procedure and three belong so far to the latent or not urgent operative kind. The original or grandfather aged seventy-two, has since boyhood known of his large spleen and frequent exacerbations of jaundice but was never seriously ill—"more jaundiced than sick," he says. I feel we can trace this odd inheritance back five generations rather vaguely.

Naturally preoperative blood transfusion suggested itself; it was given to the first case with startling almost fatal result notwithstanding all caution and no benefit as to the expected red increase or hemoglobin. It really seemed the spleen went on a rampage and reversed its normal functional activity to make blood, to store blood, to destroy gently the worn out blood and seemed to tear up the blood in this case.

The second and third cases, though seriously ill with very low count and hemoglobin were not transfused and recovery was gratifying.

Again three of this series were operated on for gallstones. None was found. Drained, but the periodical attacks of icterus persisted. One was operated on three years after gallbladder drainage, and gallbladder and one stone removed. Patient continues to jaundice at usual periods. Spleen continues to enlarge and subside.

At times if we are observant we may meet with the familial type in which splenectomy gives us the most spectacular life prolonging results.

I might add that Dr. Wm. Mayo and also Dr. Evarts Graham say that gallstones are found in over 50 per cent. of these cases but that cholecystectomy alone is not resultful. Splenectomy is.

DR. D. D. STOFFER, Kansas City: I was glad to hear Dr. Greene bring out the question of reducing the bleeding time in cases of jaundice. Several years ago I became interested in this particular subject of reducing the bleeding time in jaundice cases which ranged anywhere from twelve to fifteen minutes to a time commensurate with operation in which the bleeding time should be from three to four minutes. We all know that jaundice cases bleed quite markedly when operated on if not prepared properly for the operation.

It has been my contention that if you transfuse these patients preoperative, after a careful grouping of the blood and a careful cross matching of the donor and recipient, the patient's bleeding time is reduced to within normal limits and the surgeon need not fear a reaction of any consequence from the transfusion.

On a number of occasions the reduction of bleeding time was evidenced by filling a small gallbladder spoon with blood which, previous to transfusion, could not be inverted with marked clotting for from twelve to fifteen minutes of the time of operation, and after transfusion the same could be done in two to five minutes. This assisted the surgeon in having a normal or reduced bleeding field in which to work.

DR. CARL H. GREENE, in closing: It is obviously impossible to cover all the questions that may arise in a discussion such as this. I have tried to show the clinical bearing of some of the recent physiological studies. The differentiation of the three types of jaundice represents a case in point.

I want to thank Dr. Behrens for reporting his case of hemolytic jaundice. A familial history of jaundice is frequent though not always present in such cases. It is most unusual, however, to find so many cases in one family and to be able to trace the condition through so many generations.

The jaundice accompanying malaria, of which Dr. Nifong spoke, is generally considered as hemolytic in origin although it is very likely that an element of hepatitis or liver injury is also present.

I quite agree with Dr. Stofer as to the importance of the preoperative preparation of the jaundiced patient. No set and arbitrary method of preparation will be satisfactory in all cases. The intravenous administration of calcium may serve to control the clotting time of the blood in one patient, but in another transfusion or the intramuscular injection of serum may be necessary. In these cases careful consideration must be paid to the individual patient, not only preoperatively but it is well to continue that observation for two or three days after operation.

UROLOGY IN CHILDREN*

J. HOY SANFORD, M.D.

ST. LOUIS

Urology in children has made wonderful strides in the past few years. This accomplishment has been made possible by the perfection of various baby cystoscopes and to the great impetus that urologists have given the subject of urology in childhood with many splendid contributions to the literature.

We are now in a position to give the same careful urologic survey to the infant and child as we give to the adult but we are still confronted with the problem of acquainting physicians with our absolute preparedness along these lines and to their lack of appreciation of the similarity of the symptomatology and pathologic findings in the infant and child as compared to the adult. There are two exceptions to this statement; carcinoma is rare and prostatic obstruction does not occur in childhood.

We are passing through the developmental stage of urology in children just as was necessary in the adult. Formerly many adults were treated by internal medication with no attempt at complete study with the instruments of diagnostic precision. In some instances this treatment extended over a prolonged length of time without apparent benefit, not to mention the damage to vital organs which might have been

* Read before the Southwestern Branch of American Urological Association, at Hot Springs, Arkansas, December 7, 1928.

prevented by early recognition and removal of the cause.

Education of the profession to the fallacy of treating children over a long period of time without results and without special study is our duty and should be broadcast until results are obtained. Pediatricians are beginning to appreciate the similarity of pathological lesions in the infant and child as compared to the adult but they have seemed a little backward in their appreciation of the ease and skilful handling of these children by instrumental investigation. I am certain this hesitancy on the part of some pediatricians is due to their unfamiliarity with the small but beautifully perfected instruments of the present day and also to their lack of knowledge as to the freedom of reactions enjoyed by these little patients. Closer cooperation between urologist and pediatrician will gradually put urology in children on the same basis of diagnostic and surgical accuracy as in the adult and will do much toward the early recognition of various obstructive lesions in the urogenital tract of the child which heretofore have been treated over an astounding period of time as simple recurrent uncomplicated pyelitis.

I do not advocate immediate cystoscopic study in all cases. I think some of the acute kidney infections clear up under the expectant plan of treatment. We should be conservative and not subject these children to unnecessary instrumental investigation but reserve the refined diagnostic study to cases that resist medical treatment over a reasonable length of time, provided the illness does not call for immediate investigation. Most cases of so-called acute pyelitis should clear up in a relatively short time. If they do not then cystoscopic and pyelographic study is indicated in order to rule out abnormalities of the urinary tract and thus prevent in many cases extensive renal injury or destruction of the kidney. To my mind, a persistently recurring pyelitis is a definite indication for thorough cystoscopic study, and a persistent pyuria without recent or remote manifestations of acute pyelitis is equally if not more important for cystoscopic study, as in most instances a surgical problem will be found.

No real progress was made in the study of the urinary tract in infancy and childhood until satisfactory, small caliber cystoscopes had been perfected. It is now possible to examine infants at most any age and with little reaction. Some few years back cystoscopy in children was considered a rather formidable procedure, but with the small sized instruments and the application of gentleness, no difficulties will present themselves.

In reviewing some interesting analytical studies in diseases of the urinary tract in children one is impressed by the similarity of symp-

toms and pathologic findings as compared to the adult. My personal experience and observation is entirely in accord with the facts and findings as related by the numerous writers on this subject. The number of cases studied and reported by various writers and analytically studied as to age, sex, onset of symptoms, symptomatology and pathology with a careful and concise study as to the percentage of renal, ureteral, bladder and urethral involvement, is not only instructive but very illuminating. Kidney lesions predominated in my review of a large series of cases, although ureteral, bladder and urethral lesions were well represented.

Many splendid papers have been published on this subject by Beer, O'Neil, Hyman, Hinman, Kretschmer, Helmholz, Lowsley and Butterfield, Bugbee, Quinby, Wright, Demming, Craig, Wollstein, Patch, Pugh, Graham, Mixter, Stevens, Caulk, Thomas, Smith, Grant, McKay, Frontz, and others. A review of the literature demonstrates the interest, possibilities and importance of this subject.

Lowsley and Butterfield studied one hundred cases in infancy and childhood but their study was directed more to the surgical correction of various congenital anomalies so I did not attempt to include this analysis in my search for further evidence to support my contention of the important place that urology in children is demanding today. I do not mean to infer that the surgical aspect is not all important, but my paper is directed along the lines of diagnosis which has been made possible by the constant improvement in small caliber baby cystoscopes. The surgical correction of the various lesions found is made, in many instances, before irreparable damage has been done and certainly with a definite and conclusive understanding as to the true condition of the rest of the urinary tract, an important factor to be considered before surgical interference is attempted.

The surgical treatment of the various lesions encountered present no special problems, hence my desire to lay more stress on our ability to locate the cause of the trouble accurately and to accomplish this through the same means as in the case of the adult, namely, cystoscopy, ureteral catheterization, differential kidney functional tests and radiographic study.

In my review of these cases I was impressed with the ages at which cystoscopic study was accomplished. In one case cystoscopic study was made in a boy five weeks old and ureter catheterization in a boy twenty-seven days old; the youngest girl was four and one-half months old. This leads to but one conclusion and that is that age apparently makes very little difference if expertness of instrumental manipulation is employed.

In the matter of sex, females seem to predominate, due to their susceptibility to pyelitis, but there is very little difference as regards urological lesions.

Some interesting facts were brought out in the review of these cases as regards the time elapsing between the onset of symptoms and when patient was first seen. Some cases were seen early but by far the majority ranged over a long period of time.

In studying the symptomatology I found it to be very varied and quite similar to that seen in the adult. Kretschmer's tabulation shows nicely the systemic as well as local phenomena:

- | | |
|----------------------|--------------------------|
| 1. Fever | 13. Burning on urination |
| 2. Chills | 14. Difficulty |
| 3. Pain | 15. Irritability |
| 4. Cloudy urine | 16. Nausea |
| 5. Frequency | 17. Dribbling |
| 6. Hematuria | 18. Urgency |
| 7. Vomiting | 19. Sand |
| 8. Incontinence | 20. Backache |
| 9. Painful urination | 21. Sweats |
| 10. Headaches | 22. Tenesmus |
| 11. Constipation | 23. Retention |
| 12. Diarrhea | |

I was forcibly impressed with the predominance of upper urinary tract lesions, pyelitis being the chief offender. The differentiation of pyelitis and pyelonephritis is often impossible though it seems to me that the systemic reaction is much more severe and resistant with parenchymal involvement. In Hyman's series of one hundred and fifty cases ninety-four were renal in origin and consisted of the following varied lesions:

- | | |
|--------------------------|---------------------------------|
| 1. Pyelitis | 10. Rupture |
| 2. Pyelonephritis | 11. Contusion |
| 3. Tuberculosis | 12. Cortical abscess |
| 4. Hydronephrosis | 13. Carbuncle |
| 5. Neoplasms | 14. Nephroptosis |
| 6. Perinephritic abscess | 15. Infarct |
| 7. Pyonephrosis | 16. Polycystic |
| 8. Calculus | 17. Congenital single kidney |
| 9. Nephritis: | 18. Hematuria of unknown origin |
| a. Acute | |
| b. Chronic | |
| c. Toxic | |

Lesions of the bladder were next in frequency as compared to the kidney and were just as varied as in renal pathology. Then followed retention of urine from various causes, diverticula, cystitis (acute, chronic, ulcerative and hemorrhagic), calculus, foreign body, and others. Retention of urine is a serious complication and deserves most careful study. Beer's classification covers the field thoroughly and follows:

1. Mechanical obstructions:
 - a. Extravesical, as congenital folds and strictures in posterior urethra, pin-point meatus, contracted prepuce, new growths.
 - b. Intravesical, as contracture of neck, diverticulum, stones.
2. Neuromuscular:
 - a. Brain disease.
 - b. Spinal cord disease (spina bifida).
 - c. Spasticity of sphincter without definite neurological signs.

Lesions of the ureter and urethra come in for a good share of pathological findings and consist of stricture with hydronephrosis, stone, stenosis, congenital dilatation, double ureter, etc.

The urethral lesions consist of congenital valves of the posterior urethra, stricture, calculus, polyps.

One can readily see from the various lesions just enumerated the importance of careful cystoscopic study with utilization of all other accessories used in urological survey.

Not infrequently objections are raised to the complete cystoscopic study of these little patients on the ground that it is a major procedure, requires an anesthetic, is prone to give severe reactions and is dangerous from the standpoint of the instrumental manipulation.

This I do not agree with especially if in trained hands. Efficiency counts for making cystoscopy and ureter catheterization simple procedures, both in adults and children. Gentleness and rapidity, with quick appreciation of abnormal findings make this procedure relatively slight as compared to rough handling, awkwardness and lack of interpretation of findings, all of which go to make instrumental examination a formidable procedure in both adults and children.

Anesthesia is mentioned as an objection but without good reason, for only a few minutes should be required to accomplish bladder visualization with catheterization of the ureters. Only in exceptional cases is anesthesia necessary for a longer period than three to five minutes as it is given only for cystoscopic study and kidney catheterization, the rest of the examination requiring no narcosis. Nitrous oxide, ethylene or slight ether anesthesia may be used with safety. Local anesthesia is used to advantage in older children and with good results.

Disapproval is sometimes stressed on account of dangers attached to instrumentation. This is true to a certain degree as any trauma might spread infection should infectious elements be present in the urinary tract. My answer, again, is gentleness which precludes trauma to the mucosa. Severe reactions are rare, but occasionally they do occur in spite of every pre-

caution. This is due to the extreme intolerance that a few individuals will show to instrumentation even in the absence of inflammatory or infectious elements. Misdirected instrumentation will occasionally invite severe reaction but this is more a lack of judgment on the part of the operator than to instrumentation. I have reference to toxic individuals with low kidney function and high blood chemistry findings.

Indications for cystoscopic study are practically the same in children as in adults. Pus, bacteria and red blood-cells in the urine, hematuria, various urinary disturbances, abdominal tumors, and for differentiation purposes, are the chief reasons for instrumental investigation.

The method of examination differs very little from that in adults, except in a few instances when we are able to make a diagnosis without all of our diagnostic procedures being utilized. A good pediatrician as a consultant will materially aid in the physical examination of the child and its management before and after the study has been completed. A complete history and physical examination are essential. Useless to say, this should include search for foci of infection, as well as a chest plate where respiratory disease is present or antedated the trouble. Physical examination may reveal nothing abnormal about the chest but the X-ray may show enough tuberculous infiltration to account for the child's persistent low grade fever, provided the urinary tract is negative. Complete blood analysis, including estimations of blood chemistry, is important. If cystoscopic examination with kidney catheterization is not indicated or contemplated, combined kidney functional test should be routinely done.

Inspection and palpation of the abdomen, paying particular attention to the lumbar and hypogastric region, are important. Chronic retention of urine, renal neoplasm, polycystic kidney and other conditions may be tentatively diagnosed in this manner.

Inspection and palpation of the external genitalia is necessary to rule out anomalies, tuberculous epididymitis, abnormal discharges, etc. Rectal examination should be done at this time. Its importance cannot be underestimated.

Urinalysis is the agent that yields the most valuable information. Pus, bacteria and red blood-cells are the three elements most frequently found. In the female, cleansing of the external genitalia is essential before collection of the specimen and when possible a catheterized specimen should be insisted upon. In this manner contamination from a localized vaginitis is avoided. I have seen a voided specimen full of pus and bacteria and a catheterized specimen in the same individual microscopically and culturally negative. To avoid this error all speci-

mens for microscopic and cultural study in female children should be obtained by catheterization of the bladder. Pus in the urine without bacteria should direct our attention to the possibility of renal tuberculosis and appropriate investigation instituted.

X-ray of the entire urinary tract is made preferably before cystoscopy, as the findings may justify the use of opaque catheters or pyelographic study. Stones anywhere along the urinary tract, calcification of kidney in suspected tuberculosis, possible enlargement or irregularity of the kidney in suspicious intra-abdominal tumors are possible of demonstration. The golden rule should be X-ray of the urinary tract when pyuria, hematuria, or intra-abdominal tumor is present.

Cystogram is not routinely used, but when indicated yields valuable information. It is easily performed, requires no anesthesia and in diseases of the lower urinary tract gives valuable information; in fact, it may render cystoscopy unnecessary. Whenever residual urine is noted, cystogram is indicated. Abnormalities in the shape and size of the bladder, diverticula, ureteral reflux, hydro-ureter and hydronephrosis secondary to vesical neck obstruction, and other conditions are readily demonstrated by this simple method. In the face of acute infection a cystogram should be cautiously used.

Cystoscopy, ureteral catheterization, differential kidney functional test, microscopic and cultural study of separate kidney specimens, guinea pig inoculation of the catheterized kidney specimens when tuberculosis is suspected, and pyelograms when indicated, constitute the rest of the examination differing in no respect from the adult examination. Collection of kidney specimens, functional test and pyelograms should be done without anesthesia. Pyelograms under anesthesia should be done with caution and in all cases with the most careful technic. Bilateral pyelograms are to be condemned and especially in the face of renal damage. Cystoscopy in infants is no minor procedure and in massive infections with local and systemic manifestations, high blood chemistry estimations and low kidney functions, instrumentation should be done with great caution.

SUMMARY

1. Children present the same urologic lesions as are found in the adult, with few exceptions, and they can be successfully examined at most any age and with very little local or systemic reaction.

2. With the perfection attained in the manufacture of cystoscopes designed for infants and children, the one difference in the examination

from the adult is the size of the patient and instrument used and the expertness of the operator, which is essentially a necessity when dealing with these little patients.

3. The indications, contraindications, method of procedure (with the exception of general anesthesia) are practically the same in infants and children as in adults and should be carried out when found to be necessary.

4. With our present knowledge and advancement in medical and surgical problems in children there is no excuse for allowing children to go for indefinite periods of time without complete urological study when they fail to respond to treatment.

5. Pyuria and hematuria are definite indications for complete urologic survey in children. Recurrent pyelitis demands study to rule out abnormalities of the urinary tract. A persistent pyuria without recent or remote manifestations of acute pyelitis requires investigation as not infrequently a surgical problem is present.

6. In children, anomalies of the urinary tract should be given serious consideration as the underlying cause of many cases of recurrent pyelitis, and in persistent pyuria with or without systemic manifestation. Early diagnosis and appropriate treatment, medical or surgical, will in most instances prevent extensive and in many cases permanent renal injury.

723 University Club Bldg.

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ASTHMA AND HAY-FEVER*

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ASTHMA

Hippocrates used the term asthma to signify hurried breathing. Not until the seventeenth century was the term applied to indicate a distinct and independent malady when Helmont and Willis discovered that people suffered from peculiar attacks of shortness of breath and after death their lungs were found to be healthy. Sir John Floyer, in 1698, wrote an interesting treatise, "Of the Asthma," in which he tells how he himself suffered from the tyranny of the disease for thirty years.

Little was accomplished in the separation of the disease until the time of Laennec. Trousseau and others were inclined at first to deny the existence of an independent disease but

later conceded it to be a fact. They were inclined to believe it to be a neurosis.

John Floyer, of London, in 1698, noticed that there were peculiar cases of asthma in which the attacks were longer and more acute in summer than in winter.

HAY-FEVER

Botallus, in 1565, was apparently the first person to describe a case of what we now know as hay-fever. Von Helmont and Birminger in the seventeenth century speak of it. Bostock, in 1819, identified the seasonal coryza of which he was a sufferer as hay-fever. Dr. Elliotson, of London, in 1831, briefly described the affection and in 1833 he discussed the complaint more fully. He opposed Bostock's theory of heat and rejected the hay theory of its origin declaring grasses to be more important causes; and he first pointed to pollen as the probable cause of the disease.

In 1873 Charles H. Blackley, of Manchester, England, showed that the pollen of grasses and flowers was the sole cause of hay-fever in himself and that in two other patients the severity of the attacks was directly related to the amount of pollen in the air. In 1877 Marsh, of Tuckerton, New Jersey, published an essay in which he accepted completely the pollen theory. He first called attention to the activity of the pollen *Ambrosia artemisiaefolia*, or common ragweed, as the causative factor. Other writers, as Sir Andrew Clark, in 1887, McDonald, in 1893, Grayson, in 1897, and E. W. Holmes, in 1897, suggested neurosis as the cause of hay-fever.

Hollopeter, in 1899, published his book on hay-fever. He recognized the fact that there were two elements entering into the cause of hay-fever: (1) an exciting agent and (2) a predisposition thereto. The causative factors included pollens, heat, light, dust, ozone, benzoic acid, linseed meal, mustard, various drugs, locust tree blossoms, May apples, coffee, oak, "mange" insect of the horse, and a large number of other things. Geographically, hay-fever was found to be present anywhere although more common in Great Britain and the United States. Children as well as adults were known to be afflicted and this fact would not have been recognized unless the parents had not also been afflicted. Males seemed to be more susceptible than females in the proportion of three to one.

Beard, Bosworth, and others found that in England and on the continent of Europe, hay-fever prevailed in June and July, whereas in the United States it prevailed in August and lasted until frost. As early as this Hollopeter stated that there were two well known types of the disease, (1) the catarrhal and (2) the

* Read before the Nodaway County Medical Society, Maryville, August 10, 1928.

asthmatic. The symptoms were well outlined as being: 1. Sense of irritation in the upper nasal chambers. 2. Itching and burning sensation of inner canthus of eyes. 3. Itching or tingling in roof of the mouth. 4. Spasmodic sneezing. 5. Pain in the eye-balls. 6. Thin serous discharge from nose. 7. Photophobia. 8. Puffiness and edema of face. 9. Sense of taste and smell impaired. 10. Some difficulty in swallowing. 11. Insomnia. 12. Cough. 13. Rarely, alteration in pulse or temperature from normal. 14. Asthma is a complication, as also at times a nettle rash, various types of cutaneous eruptions and inflammation of the external auditory canal.

In the majority of cases the physician is not called upon to make a diagnosis of hay-fever, especially when the spring and fall types are encountered. However, many of the perennial types of hay-fever are not diagnosed properly. The ingenuity of the physician is brought to play in the last mentioned type. A very careful history will sometimes elicit the causative factor but one should seek further than this by doing the routine allergy tests. These consist of meats, fowl, dairy foods, vegetables, fruits, nuts, animal emanations (such as hair and dander), fish, grains, odors, and pollens, including tree pollens, grasses and all types of weeds. Bacteria also are used in testing. When these tests are found negative in some cases one has to seek further for the causative factor with a careful history of what the patient encounters in his everyday routine, it becoming necessary at times to make up a special test solution of the suspected causative agent.

The patient should be tested for heat and cold sensitiveness because we now know that physical agents are responsible for a few cases of what we call perennial hay-fever or the type that is so often mistaken for acute colds. In cases of asthma this also applies, for the two conditions often go hand in hand. Once the causative agent is found a considerable amount of good can be done the patient and especially is this true when it is a dietary affair.

It might be well to make clear the fact that hives, hay-fever, asthma, angioneurotic edema, and eczema are related in that foreign proteins are found as a cause in a considerable number of cases. A man's occupation oftentimes brings him into contact with foreign substances that cause him considerable discomfort in the way of hay-fever, asthma, etc. It becomes necessary to make an exhaustive study in these cases to be sure of one's diagnosis for it is not always easy for a man to change occupations after he has spent years in it or in working up a paying business. A very good illustration of this is a case which I recently had of a man

who ran a small country merchandise store. He noticed each time the floor was swept with cottonseed meal that he had a considerable amount of sneezing, stopping up of the nose, and profuse watery secretion lasting about two hours. He also noticed the same symptoms at times during the day while waiting on customers. In doing the routine tests he was found to be extremely sensitive to feathers as well as the cottonseed meal. By removing the chickens which he kept inside the store and letting others handle them outside and eliminating feather pillows from his bed he was perfectly all right and has been so for the past eight months.

This case brings to mind one just reported in the *Journal of the American Medical Association* by Piness who found a man with asthma due to parrot feathers. This man was subject to frequent daily coryza and shortness of breath (diagnosed asthma by Dr. Piness), especially over the week-end when he spent considerable time at home. He had three pet parrots in his house which were disposed of after a special test solution had been made and he was found very sensitive to the feathers. Also the precaution of removing feather pillows from his bed was taken with the result that the man gained in weight and his symptoms disappeared.

Another case so striking that it should be mentioned, was of a boy nine years old who for several months had to blow his nose practically all the time and often complained of shortness of breath and cough. The history was unsatisfactory because the parents took the attitude that the diagnosis was incorrect. After testing the boy and finding him sensitive to animal hair his pet dog, a small, wire-haired fox terrier, was given away and the house given a thorough going over, including cleaning of all the rugs and draperies. Since then no attacks of asthma or hay-fever have been noticed except on occasions when he tries to go horseback riding or stops to pet someone's dog. A surprising thing is the fact that this boy was given a dose of tetanus antitoxin a short while ago with no ill effects which is contrary to what happened about a year ago to a very good physician friend of mine. He took an immunizing dose of tetanus antitoxin with fairly severe results in the way of hives, asthma, angioneurotic edema, and persistent vomiting for a period of nine days, the reaction coming on two days after the dose of antitoxin had been given. He knew that he had always been sensitive to horsehair because he acquired asthma each time he was around a horse.

Foods play an important part in the perennial type of hay-fever and on finding the food

tests positive the foods so found should be eliminated entirely from the diet. In my experience the most common offenders of the vegetables have been, tomatoes, cucumbers, spinach, and beans; and of the fruits, strawberries, blackberries, watermelon, and cantelope in the order named. Dairy foods, which are known as eggs and milk, are extremely common offenders and meats are a close second. Milk is the most common offender of all foods encountered in the various allergy cases in which the perennial type of hay-fever manifests itself, or in eczema, asthma and hives. Some patients know that the conditions are also accompanied by gas on the stomach and bloating of the abdomen which may or may not be accompanied by pain and as a result they have tried dieting of their own accord. However, some routine food which does not produce such pronounced gastro-intestinal symptoms may still be a factor in causing the trouble and can be detected only in the routine allergy tests. To promiscuously put a case of this kind on a diet without definitely finding out what foods he is sensitive to is a mistake and not helpful in the great majority of cases. Cases are sometimes encountered in which one food alone is the cause and in this particular instance excellent results are obtained without going to the trouble of doing the allergy tests.

Where cases of spring and fall hay-fever are encountered, considerable good can be done by repeated and increasing doses of the pollen to which they are sensitive, beginning with the injections of pollen well before the hay-fever season begins. Excellent results are obtained in 80 per cent of these cases in my experience. In the fall type of hay-fever where asthma is a complication I can say that the asthma part of the condition is considerably easier to relieve than the hay-fever part. The majority of fall hay-fever cases are due entirely to a sensitization to the short and giant ragweed, western ragweed, and southern ragweed, in combination. Pollen extracts of the above are made in five different dilutions starting with .005 mgm. to the cc. of Coca's solution, the next solution being 10 times as strong or .05 mgm. to one cc. and so on to the highest dilution of 50 mgm. to the cc. which is a 5 per cent solution. Great care should be exercised in giving these solutions, gradually working up from the .005 mgm. dilution to the 50 mgm. dilution. Severe and unpleasant reactions are encountered if the injections are pushed too rapidly, requiring adrenalin to counteract the reactions. I long ago stopped using large doses of adrenalin in counteracting these reactions because we know that patients have been made dangerously ill with adrenalin when, after the reaction had subsided, another dose of adrenalin was given

to prevent a return of the symptoms. Such patients are apt to become very weak, pale, and one became ashen in color for a short while, which to me signified a dangerous condition. I believe the repeated use of adrenalin causes a weakened and dangerous myocardial condition. Instead of using one cc. of adrenalin as has been advised by good authorities in the past, I use but one-fourth cc. at a time getting just as good and quick results with far less discomfort to the patient.

Cases of asthma, hay-fever, etc., are encountered where no definite sensitization is found either in the routine allergy tests or in a careful search of everything with which the patient comes in contact. However, one should keep on trying to find the causative factor for considerable good can be done the patient after it is found. It is not always easy by any means to study each patient thoroughly because of lack of time or lack of inclination on the part of the patient.

The story is often given the physician that the symptoms of hay fever or asthma manifested themselves in middle life or later life. The patient then puts the question as to why this should happen, and justifiably so; but the fact has been unexplained to date. All that we can say is that their tolerance has been broken down due to some other physical condition or that an overindulgence in sensitizing foods has broken down their threshold of tolerance.

In concluding I wish to say that the study of asthma and hay-fever is a very interesting one; that we are advancing rapidly both in finding causative factors, thereby getting better results, and the people as a whole are becoming better educated on the subject which is evidenced by their seeking out a physician who does these tests after they have been treated repeatedly for what was thought to be a common cold and they themselves recognized as hay-fever.

718 Rialto Building.

TUBERCULOSIS IN ST. LOUIS

ANALYSIS OF DEATHS FOR 1928, WITH REFERENCE TO AGE, COLOR, SEX, AND TYPE OF DISEASE

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ST. LOUIS

It has been stated that the large and continuous decline in the death rate is perhaps one of the most outstanding and definite facts of the tuberculosis problem.

The death rate from tuberculosis is higher in urban than in rural districts. The United

Table 1. Deaths From Tuberculosis for 1928 According to Type and Age. St. Louis

		MALE																														1928		1927			
Under		5		5-9		10-14		15-19		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		70-74		75+		Total	Total		
Age—Years		W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C		
Pulmonary Tuberculosis																																					
Complicated With Tuberculosis of—																																					
Meninges or Central Nervous System.....		3	1	1				2	2	1	1	1		1		1		1		1	1	2										9	5	8	2		
Intestines or Peritoneum			2					2	4	2	3		1	1	3		3	1	3	1	2											21	9	12	2		
Vertebral Column			1		1																												2				
Joints								1																									1				
Bones												1																					1				
Lymphatic System							1																										1		2		
Genito-Urinary System..																																2		2			
Other Organs							1		1					1						2					1							6		1			
Skin											1																	1					2				
Tuberculosis of Other Structures—Uncomplicated—																																					
Respiratory System			4	1	1			7	8	18	22	17	16	22	11	24	8	33	17	28	17	18	13	25	2	20	3	13	1	6	2	4	1	236	126	267	113
Meninges or Central Nervous System		6	2		1	1					1		2		2			1		1													11	5	5	5	
Intestines or Peritoneum		1		1	1		1					1				1		1	1													4	4	4	1		
Vertebral Column				1							1	1									1												4	1	1	1	
Joints																																			1		
Lymphatic System		1																																1			
Genito-Urinary System..																				1													1		1		
Miliary Tuberculosis ..		2	1		1			1	1	2	2			1		3		2	1			1	1									7	12	2	19		
Disseminated Tuberculosis														1																			1				
Total (1928)		13	11	4	5	1	1	9	11	27	30	25	18	28	13	31	12	39	22	35	18	23	14	26	2	21	3	13	1	9	2	4	1	308	164	309	146
Total (1927)		6	6	3	2	1	3	5	12	26	20	28	24	25	20	32	26	39	12	35	12	30	3	28	1	23	3	15	1	6	7	1					

Table 2. Deaths From Tuberculosis for 1928 According to Type and Age. St. Louis

	FEMALE																																1928		1927	
Age—Years	Under 5		5-9		10-14		15-19		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60-64		65-69		70-74		75+		Total	Total		
	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C	W	C		
Pulmonary Tuberculosis																																				
Complicated With Tuberculosis of—																																				
Meninges or Central Nervous System	4	1			2		2		3	4	2	4		2	2	2		1	1												10	4	4	1		
Intestines or Peritoneum					1		1		3	1	2		1								1										20	5	13			
Vertebral Column																																		4		
Joints																																			1	
Bones									1																								1		2	
Lymphatic System							1					1	1				1															4	1	1	3	
Genito-Urinary System																										1						1				
Other Organs						2			1		2						1	1														4	3	1	2	
Tuberculosis of Other Structures—Uncomplicated—																																				
Respiratory System	1	3		2	3	6	15	21	23	21	24	31	21	12	10	8	18	10	11	7	10	5	5	3	3	1		2		1	147	130	155	108		
Meninges or Central Nervous System	6	2	2	1	1								1								1											9	3	5	3	
Intestines or Peritoneum						1							1								1											2	2	6	3	
Vertebral Column												1							1	1		1				1						1	4	2		
Joints							1																										2			
Skin																																			1	
Bones (Vertebral Column Excepted)																																			1	
Lymphatic System								1																									2	1	1	
Genito-Urinary System																																		2		
Miliary Tuberculosis	2	1		1			1	4		2	2	1		1	1					1											7	10	5	10		
Disseminated Tuberculosis																																				
Total (1928)	13	7	2	6	4	12	22	27	30	24	35	37	27	14	15	10	21	11	14	9	15	6	5	3	4	2	1		2	2	212	168	198	136		
Total (1927)	9	11	2	1	2	7	22	23	31	24	33	20	27	20	11	15	13	12	6	1	13	1	6		11	1	7		4		1					

States Registration Area figures for 1925 show a death rate for urban districts of 86.8 per 100,000 population in comparison with 84.1 for rural districts.

Considerable variation was shown in the different states. Utah had the lowest death rate from tuberculosis, i. e., 26.6, and Tennessee the highest, i. e., 138.0 per 100,000 population. The rate was still higher for California and Colorado, attributed however to migration of the tuberculous from other districts into these states.

Large cities showed similar variation. Grand Rapids had the lowest, i. e., 42.2, New Orleans the highest, i. e., 183.9 per 100,000 population. The rate was still higher for Denver and San Antonio, again attributed to migration of the

tuberculous from other districts into these cities.

The death rate from all forms of tuberculosis has dropped more than 50 per cent in the last 26 years. This drop has been greatest among children under 5 years of age. The young group, from 15 to 24 inclusive, has shown the least decline in death rate, despite the fact that between 25 to 44 is the age period when the hazards of life are the greatest for both men and women.

The death rate from 1911 to 1920 was 36 per cent higher among white males than white females, and 8 per cent higher among colored males than colored females.

The death rate has been approximately the same for both sexes up to 10 years of age. Be-

Table 3. Comparison of the Death Rate in St. Louis for Negroes and Whites for 1927 and 1928

Cases		St. Louis		Rate	
1927	1928			1927	1928
452	466	Death rate	white	per 100,000 Population	Pulmonary 60.3 61.6
256	289	Death rate	colored	per 100,000 Population	Pulmonary 284.4 314.1
38	54	Death rate	white	per 100,000 Population	Extrapulmonary 5.0 7.1
44	43	Death rate	colored	per 100,000 Population	Extrapulmonary 48.8 46.7
490	520	Death rate	white	per 100,000 Population	All forms 65.4 68.7
300	332	Death rate	colored	per 100,000 Population	All forms 333.33 360.8
708	755	Death rate	white and colored	per 100,000 Population	Pulmonary 84.4 89.0
82	97	Death rate	white and colored	per 100,000 Population	Extrapulmonary 9.7 11.4
790	852	Death rate	white and colored	per 100,000 Population	All forms 94.1 100.4

ginning with the age of ten and continuing for the next fifteen years, the female death rate has been higher than the male rate for both white and colored. Beyond the age of 30 the female death rate drops rapidly and remains lower than the male rate for the white race through life. The excess rate for males in general is limited to the age beyond 30, while the female shows an excess at a younger age.

The Environmentalists explain the sex difference by saying that boys and girls are very much the same as to exposure and resistance. The higher rate for females at the ages of adolescence and early adult life is attributed to associated developmental changes in the organism involving greater hazards than among males. The relative mortality rate changes occur about age 25 and thereafter the female enjoys decided advantages. Fewer females are engaged in industry, with the hardships of factory routine; they lead a more regular and sheltered life; they indulge in fewer excesses, have better habits, and take better care of themselves. For these reasons, those who hold the first view would expect to find the facts very much as they actually are.

On the other hand, those who sponsor the theory of the Constitutional factor in tuberculosis causation have at no time addressed themselves to this problem or attempted to explain the phenomena.¹

Table 1 and Table 2 show the types of tuberculous disease causing death in St. Louis with reference to age, color, and sex for the year of 1928. On the right border beyond the 1928 totals are the 1927 totals for the purpose of comparison. On the bottom below the 1928 totals are the 1927 totals also for comparison.

It will be noted that 62 more deaths occurred in 1928 than in 1927, which is in keeping with previous experiences in the presence of the high incidence of influenza and other acute respiratory infections such as occurred during the year 1928.

This increase, it will be seen, is distributed with respect to age and type of disease, al-

though the chief increase is among the colored race.

The female death rate is high in both races between the ages of 15 and 40. The white male death rate is high from 15 to 60, while the colored male death rate occupies a midposition between that of the female for both races and that of the white male. The presence of old white men with chronic ulcerative fibroid phthisis is conspicuous in our chest clinic service in St. Louis. These patients are difficult to control without adequate legislation and serve as a dangerous and continuous source of spread of infection.

Table 3 shows the death rates for the two races during 1927 and 1928 with reference to pulmonary and extrapulmonary forms of tuberculosis. These analyses are based upon death certificates giving tuberculosis in its different forms as the cause of death. Only 789 of the 790 deaths from tuberculosis in 1927 are accounted for in the 1927 totals here given.

413 University Club Bldg.

DIAGNOSIS OF CONGENITAL DIA-
PHRAGMATIC HERNIA*¹

REPORT OF CASE

EDWIN J. SCHISLER, M.D.

ST. LOUIS

The close relationship of the lower thoracic and upper abdominal viscera is oftentimes confusing and the interpretation of clinical symptoms and findings is so complicated with abdominal symptoms that the thoracic cavity is overlooked. The case here reported is an example, as the clinical symptoms were those of chronic appendicitis without the usual gastric disturbances but with tenderness over the right lower quadrant for about nine years.

The classification of hernias of the diaphragm by Richards, based on an embryologic study of the structures involved, has done much to clear up the confusion incident to terminology. His classification follows:

*Read at the meeting of the St. Louis Medical Society September 18, 1928.

1. From the Medical Department of St. Anthony's Hospital.

1. Dublin, Louis I.: Health and Wealth, New York, Harp-
er & Brothers, 1928.

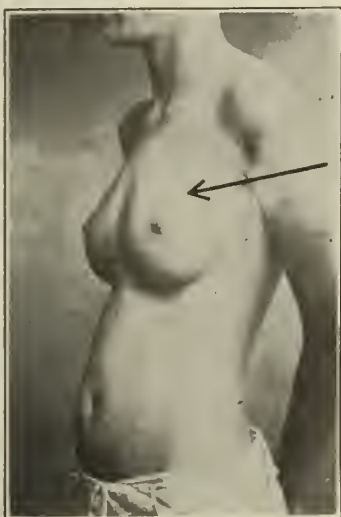


Fig. 1. Depression of left chest.

1. True hernias (those with hernial sac).
 - a. Congenital (present at birth).
 - b. Acquired. Through natural openings (mostly esophageal) and elsewhere (traumatic or nontraumatic).
2. False hernias.
 - a. Congenital.
 - b. Acquired (all traumatic).
3. Eventration of diaphragm (not a true hernia).

Radiology has done much in demonstrating this symptom complex in the diagnosis of this condition; which probably accounts for the more frequent case reports in recent years, for hernia of the diaphragm was recognized in the early centuries. In 1579 Paré described the postmortem findings in a patient who had suffered a penetrating chest wound followed by a hernia of the colon into the chest.

Diaphragmatic hernia may be the result of congenital enlargement of normal openings in the diaphragm, trauma, short esophagus, or final rupture of an eventrated diaphragm. Congenital deficiency occurs mostly on the left side and the physical findings in uncomplicated cases are: development impaired on affected side, cardiac displacement, absence of lung sounds, hyperresonance and tympany over affected area.

Carman,¹ in his report of 17 cases, estimated the frequency as 1 in 18,000; it is therefore of unusual occurrence.

The symptoms of hernias of this type are misleading for the congenital type at times gives no symptoms until some other cause prompts the patient to seek medical advice. The symptoms are varied, for the case presented has had repeated attacks of pain in the right lower quadrant lasting for 2 or 3 days

since she was nine years old, but she gave no symptoms of gastric disturbance. Clinical symptoms when present are usually, dyspnea, due to compression of the lung on the affected side with displacement of the trachea and mediastinum to the opposite lung; cardiac symptoms, such as palpitation, and at times precordial pain attributable to displacement by pressure of an overloaded stomach. The traumatic type shows cyanosis as a result of cardiac and respiratory distress.

REPORT OF CASE

E. M., age 17, single, white, female, height 5 ft. 7 inches, weight 104 lbs. Father died of carcinoma and mother dead, cause unknown. Previous history included the usual diseases of childhood—whooping cough, scarlet fever, diphtheria and repeated attacks of tonsillitis. Menses at 16 years, irregular and painful at times; flow scant. Present illness began when about nine years old with attacks of pain in right lower quadrant at frequent intervals and lasting for a few days; no gastric symptoms. Entered St. Anthony's Hospital June 1 with diagnosis of chronic appendicitis; operation done and surgical report follows:

"Kammarer incision over appendix. Abdomen explored. On opening the peritoneum the absence of intestines was noted. The liver extended down to the brim of the pelvis. The liver was engorged; the margins sharp. The gallbladder was about 3 inches in length and one and one-half inches in diameter. The walls were thin but of a normal color. No stones were palpated. The bile was expressed with difficulty. The left lobe of the liver was very small, being about two inches in transverse length and the same in superior and inferior length. It was soft to palpation. The greater curvature of the stomach was at the umbilicus. It was partially fixed. The pylorus was normal in appearance. The duodenum took a backward and upward course posterior to the stomach. The cecum, colon and small intestines were not seen, nor could they be palpated. They were above and posterior to the stomach. The sigmoid extended directly upward and disappeared behind the stomach. The kidneys could be palpated.



Fig. 2. Depression of sternal region.

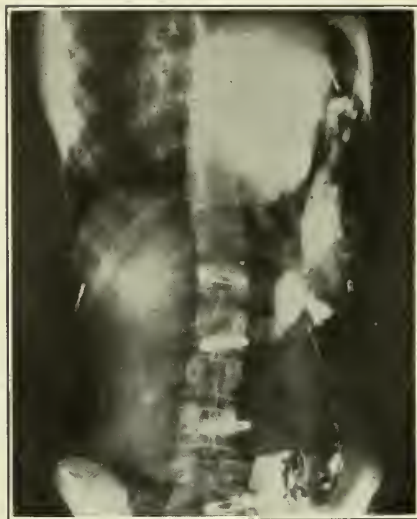


Fig. 3. Showing transverse colon and stomach in left chest.

Uterus, tubes and ovaries were normal with the exception of a small cyst on the right ovary. Due to the location of the incision it was not possible to feel the diaphragm; it was our opinion that we were dealing with a congenital diaphragmatic hernia and that the intestines were in the left chest."

The patient was referred by Drs. O. T. Upshaw and M. J. Pulliam June 13, 1928, and examination showed a female patient of medium development, fairly well nourished, asthenic in type, arteries and skin normal, temperature 99, pulse 72, respiration 22, blood pressure 118/64. Eyes, nose, mouth and ears negative; thyroid questionably palpable; no abnormal pulsations in neck or adenopathy. The chest was long and narrow; excursion and development of the lower chest impaired with depression from 5th intercostal space downward. Sternal prominence with bulging of right lower chest. Lung and breath sounds normal over upper chest and right lung; left lower lung from 5th intercostal space downward showed no breath or voice sounds with hyperresonance. Chest measurement 25 cm. in width. Heart action regular; outline of cardiac dullness 6 cm. to right of imaginary midsternal line and apex 3 cm. to left in the 6th intercostal space. Apex impulse felt at right border of sternum. A slight hemic murmur over entire precordium. Abdomen was pendulous, panniculus thin. Costal angle irregular and shows deformation. Liver palpable, 2 cm. below costal margin; spleen not palpable. A scar to right of median line. Extremities showed a depression of left lower chest from 5th intercostal space downward; tibia regular and all reflexes normal; no clonus. Vaginal examination showed the external genitalia normal; there was a moderate muco-epithelial discharge. Urine straw color, clear, acid, sp. gr. 1003, very faint trace of albumin, 4 to 5 pus cells to the field. Blood coagulated in 4 minutes, hemoglobin 90 per cent., color index .9+, R.B.C. 4,600,000, W.B.C. 8,000. Polymorphonuclears 69 per cent., lymphocytes 20 per cent., large mononuclears 7 per cent., eosinophile 4 per cent. Basal metabolic rate 10 per cent. minus, Wassermann negative.

The tentative diagnosis of congenital diaphragmatic hernia with a hypertrophic liver and chronic tonsillitis was made. Advised X-ray and barium meal. Fluoroscopic examination made by Dr. P. F. Titterton showed the right lung and diaphragm within normal limits; the heart was regular in outline and action, the trachea displaced to the right.

The left side showed gas filled intestines as high as the second rib anteriorly; no diaphragmatic excursion on left side. Part of the 6 hour barium meal is to be found in the intestines in the left chest and a small residue in rectal pouch. Immediate barium meal passed readily to the cardiac end of the esophagus, which was considerably dilated. The stomach lay in the lower left chest cavity in the form of an inverted V. After the esophagus was well filled the barium emptied into and filled the stomach, which displaced the heart further to the right and there was constant splashing of the gastric content due to the cardiac pulsation. The pyloric end of the stomach seemed to be in the outer lower portion of the left chest. The duodenal cap could not be visualized and there appeared to be small intestine in both the chest and abdominal cavities. Upon giving the barium enema the rectal pouch and sigmoid were seen to be in their normal positions. The turn of the splenic flexure was made and after following the normal course of the transverse colon for about 6 to 7 cm. the large intestine turned upward into the chest cavity. The transverse colon and cecum were found in the chest cavity upward as high as the second intercostal space in the left chest. Upon deep respiration the chest content did not move to any extent. Abdominal palpation was unsatisfactory on account of recent operation. The appendix was not visualized with the patient lying on the left side; the contents of the left chest were seen to lie well forward; no additional information was obtained with the patient lying on her abdomen. No hernial sac demonstrable. No diaphragm demonstrated on the left, but it was thought that part of the diaphragm was present on account of there being a splenic flexure present and on account of the normal course of the transverse colon being followed for about 6 or 7 cm. X-ray diagnosis, congenital diaphragmatic hernia. Treatment: operation and correction contraindicated.

Differential diagnosis, pneumothorax, pleuritic effusion, hemothorax, empyema, lung abscess, diverticulum of the diaphragm, where history, blood findings, X-ray are diagnostic. At times the hernial sac contained only solid viscera and the diagnosis was more difficult.

Hernia of the diaphragm is of interest to surgeons and clinicians alike, partly because of the spectacular event so often connected with



Fig. 4. Regular barium meal and barium meal in stomach in left chest.

its acquirement or its repair and partly because of its rarity.

Hedblom,² in 1924, was able to find records of only 359 cases reviewed in the literature. To these he added nineteen cases from the Mayo Clinic bringing the total to 378. It is probable that the total number of reported cases would represent only approximately half the actual number, since the first two cases on record were reported by Ambroise Paré in 1610.

The mortality depends on many factors—the age of the patient, the type, situation and size of opening, the degree of obstruction and whether or not gangrene and perforation have already occurred. In the 27 cases there were 5 deaths from operation, two of them considerable time after operation, one nearly 3 weeks afterward from pulmonary embolism, and the other 4 weeks later from peritonitis. There were 127 deaths, an operative mortality of 33.6 per cent.

The literature contains reports of a relatively large number of cases diagnosed only after symptoms had persisted for many years. A large number of cases are reported in which the hernia was discovered at operation. Many hernias are discovered at necropsy, after death from gastric or intestinal obstruction.

Surgery is indicated in obstruction, gunshot wounds and other cases, depending on location of hernia, clinical symptoms, etc.

Hernias of this type should be kept in mind when making radiological examination, in order to make an early diagnosis and apply proper corrections.

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CIVILIZATION AND MEDICINE*

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KENNETT, MO.

A medical association that has been active for fifty-two years without break or interruption of its activities must have some worthy objects as an incentive for its members. If we take the time to learn something of the aims and ideals of the Southeast Missouri Medical Association we will learn that its avowed purpose is, to advance the intellectual and moral character of the medical profession; to merit the unbounded trust reposed in the medical profession by mankind; to uphold the laws

which safeguard public health, and to further all worthy objects for which such societies are organized. Such are the ideals of this organization that has not failed to meet annually for more than half a century, and most of the time it has met not merely annually but semianually.

For the privilege of serving such an organization I am grateful and, at this my first opportunity, I wish to express to the members my feeling of deep appreciation for the honor conferred on me at its last annual meeting by being chosen president.

By way of appreciation of the founders of the Southeast Missouri Medical Association I desire to remind you that the charter members, and other early members, have for many years served it so wisely and unselfishly that it has attained as an organization some of the admirable characteristics and ideals of these men.

We may well have a deep reverence for these good men and a keen appreciation of the importance to our profession of their good work. When I think of them I am reminded of the men of medicine of the past who by hard disciplined thinking and by carefully analyzed words and statements have clarified the mists of antiquity and builded a foundation for the development of modern science.

To understand clearly our position in medical science today it is of prime importance that we should all know something of the pit from which we have been dug, something of the suffering, the stumbling effort, the many mistakes and the terrible practical errors that have been made by those who have lifted us out of the mire. The value of what we now possess can only be fully appreciated and utilized by the aid of the searchlight which study of the beginning of things gives us.

Even a casual knowledge of the character of the men of medicine of the past, who have contributed to the recorded knowledge of their time, is the most perfect specific for dissipating any feeling of self-complacency or egotism that may have found lodgment in the minds of any of us.

If we go back as far as we can we learn that the first known physician, I-em-hetep (he who comes in peace), was a celebrated Egyptian physician who lived 4500 B. C., in the third dynasty. After his death he was worshiped at Memphis and temples were built in his honor. It is natural to conclude that he was a man of importance among his people and that he contributed to their comfort and happiness.

We learn of the early Egyptians from Herodotus who tells us something of their hygienic customs, of the gods of their worship and their ideas about medicine. He says, "The Art of Medicine is thus divided among them;

*President's Address to the Fifty-Second Annual Meeting of the Southeast Missouri Medical Association, Farmington, Mo., October 2, 1928.

each physician applies himself to one disease only, and not more. All places abound in physicians."

So we learn that this business of being a physician is not something new under the sun—since ancient Egypt seems to have been cluttered up with them—and they were all specialists. For he says further—"Some physicians are for the eyes, others for the head, others for the teeth, others for intestines and others for internal disorders."

It is evident that modern medicine has not yet equaled those ancient people in specialization. The most interesting Egyptian medical papyrus is that discovered by George Ebers, at Thebes, 1872, which dates back to 1550 B. C. It begins with a number of incantations against disease and then proceeds to list a large number of diseases in detail, with about seven hundred different remedies for them.

Some ethical precepts of ancient Egyptian physicians are very much like the Hippocratic oath in sentiment and expression, indicating that the pre-Hippocratic medicine in Greece had an origin closely connected with Egyptian medicine.

European medicine begins properly in the age of Pericles and its scientific beginning centers in the figure of Hippocrates. The age of Pericles, or the Golden Age of Greece, was a period of about 30 years under the leadership of this genius, Pericles.

It was the peculiar genius of this man and of his atmosphere that let loose the genius of men about him and attracted men of great intellectual vigor to Athens. The group includes Aeschylus, Sophocles, Euripides, Pythagoras, Socrates, Herodotus and Hippocrates. Such a group of intellectuals in close association was not equaled before nor since. The Athenian writers were, indeed, the first modern men. They were discussing questions that we still discuss. They began to struggle with the great problems that confront us today. Their writings are our dawn.

Jung in his "Psychology of the Unconscious" makes a comparison between ancient (pre-Athenian) thought and modern thought and calls the former undirected thinking, the latter directed thinking. The former was a thinking in images, akin to dreaming, the latter a thinking in words. Science is an organization of directed thinking. The antique spirit (before the Greek thinkers) created not science but mythology. The ancient human world was a world of subjective fantasies like the world of children and uneducated young people of today, and like the world of savages and dreams. Infantile thought and dreams are a re-echo of prehistoric and savage meth-

ods of thinking. "Myths," says Jung, "are the mass dreams of people, and dreams the myths of individuals."

The work of hard and disciplined thinking by means of carefully analyzed words and statements which was begun by the Greek thinkers was a necessary preliminary to the development of modern science.

In literary style Hippocrates is like the best writers of the classic period, precise and simple. The law and the discourse on the "Sacred Diseases" are the loftiest utterances of Greek medicine, and whether due to Hippocrates or not they represent the essence of his teaching.

All that a man of genius could do for internal medicine, with no other instrument of precision than his own open mind and keen senses, he accomplished. Hippocrates it was who gave to Greek medicine its scientific spirit and its ethical ideals, and by common consent he is the "Father of Medicine" and the greatest of all physicians.

The ancient period closes about 500 years after Hippocrates with Galen, the founder of experimental medicine. His writings were the fountain-head of ready-made theory. Galen, with fatal facility and ingenuity, proceeded to explain everything in the light of pure theory, thus substituting pragmatism for the plain notation and interpretation of facts as taught by Hippocrates. The effect of this dogmatism and infallibility upon after-time was appalling. After his death European medicine remained at a dead level for nearly fourteen centuries.

During the dark ages (476-1000) western European civilization was in a chaotic, formless state. The clergy were the only class who had pretense to education and, before the time of the school of Salerno, medicine was entirely in the hands of the Jewish and Arabian physicians.

The Arabians were able chemists and their descriptions of the *materia medica* and the preparation of drugs became standard authority throughout the Middle Ages. Some of the fees received by Arabian physicians were phenomenal. Gabriel Bostischua, a favorite of Harun Al-Rashid, got about \$1500 per annum for "bleeding and purging the Commander of the Faithful," besides a regular monthly salary of about \$2500 and a New Year's purse of \$6250. He estimated his total fortune in fees at \$10,000,000, and on being recalled from banishment to heal Al-Meramun, he received \$125,000 which Withington regards as the largest fee on record. The chief glory of medieval medicine was undoubtedly in the organization of hospitals and sick nursing, which

had its origin with the teachings of Christ. For while the germ of the hospital idea may have existed in the ancient Babylonian custom of bringing the sick into the market place for consultation, the spirit of antiquity towards sickness and misfortune was not one of compassion, and the credit of ministering to human suffering on an extended scale belongs to Christianity.

Among the largest and best appointed hospitals of the medieval period were those founded at Damascus (1160) and Cairo (1276). A description of the great Al-Mansur hospital sounds like a dream for future attainment. "It was a huge quadrangular structure with fountains playing in the four courtyards, separate wards for important diseases, wards for women and convalescents, lecture rooms, an extensive library, out-patient clinic, diet kitchens, an orphan asylum and a chapel. It employed male and female nurses, had an income of about \$100,000, and disbursed a suitable sum to each convalescent on his departure so that he might not have to go to work at once. The patients were nourished upon rich and attractive diet and the sleepless were provided with soft music or, as in the "Arabian Nights," with accomplished tellers of tales.

During the Middle Ages, European humanity was plagued with epidemic diseases as never before nor since. The real predisposing factors were the crowded conditions and bad sanitation of the walled medieval towns, the squalor and gross immorality occasioned by many wars, by the fact that Europe was overrun by wandering soldiers, students and other vagabond characters, and by the general superstition, ignorance and uncleanness of the masses who, even in their bath houses, were crowded together in one common compartment, sometimes with the sexes commingled. The earliest of the great medieval pandemics were the leprosy, Saint Anthony's fire (857), scurvy (1250), influenza, the "Dancing Mania" (epidemic chorea) and sweating sickness.

The most formidable were the Black Death and syphilis. The Black Death which caused the death of one-fourth of the population of the earth (over 60 million of human beings), appeared in Europe about 1348 after devastating Asia and Africa. It broke out anew at intervals up to the end of the seventeenth century. Sweeping everything before it, this terrible plague brought panic and confusion in its train and broke down all restrictions of morality, decency and humanity. Parents and children forsook one another in an effort to save themselves. The dead were hurled into huge pits, hastily dug for the purpose, and putrefying

bodies lay about everywhere in the houses and streets.

Let us turn from this gloomy picture and be reminded that the men of the Middle Ages carried on a kind of spiritual activity and made it dominate the course of outward events. I mean, the men who lived in the strongly and even brilliantly lighted ages that unfolded in the towns of France, England, Germany, Italy and Spain in the twelfth and thirteenth centuries. The men who lived in the medieval world believed in the Christian religion. They believed also in beauty and in reason and wisdom.

The medieval artists created an art which could be seen by all the people all the time. They embodied their love of beauty in everything they touched. They embodied it in craftsmanship, in poetry, in painting, in sculpture; above all they embodied it in the architecture of their abbeys and cathedrals, their town-halls and the towns themselves. They created an art which was new and an art which reveals more plainly than anything else the life and the soul of their civilization.

With the revival of learning came the revival of medicine. At this time medieval practice was bound up with superstition, herbo-doctoring and quackery. The giving of medicine was controlled largely by the signs of the zodiac. *Witches* were being industriously hunted down, but the three great leaders of this period, Vesalius, Paracelsus, and Paré were experimenters in the truest sense, and withal there was an eager spirit of inquiry and a desire to study nature at first hand and no longer to follow tradition or to depend on authority, which indicated the dawning of the modern scientific era. Every Renaissance artist had become a realist and a pseudo-scientist, interested in problems of perspective and of human anatomy. Leonardo da Vinci, who finally abandoned art for science, had been a most brilliant, careful and discriminating dissector.

Michelangelo, already an old man when Vesalius began to teach, knew more of human anatomy than did the professors of the schools. The notes and drawings of these two great men, unfortunately, had not been accessible to inquisitive students and to Vesalius alone is due the credit of having placed anatomy at last on a firm scientific footing.

A century later Harvey established the fact that the heart acts as a muscular force-pump propelling the blood along. This fact marks the commencement of experimental medicine. The profession was no longer satisfied with customs, authorities and theories, but began to demand demonstration and proof. This for-

ward step was a good brick, well placed in the structure of man's progress. Physiology became a dynamic science.

Near the end of the eighteenth century Jenner performed his first vaccination against smallpox and we still consider it one of the greatest glories of medicine. It gave to the world a preventive measure against a disease which, up to that time, had been one of the world's most dreaded plagues. It was a brilliant piece of work that gave not merely a protective treatment against a certain disease, but also contributed a permanent working principle that is the foundation of preventive medicine. It was only a few years later (1807) that compulsory vaccination was introduced in Bavaria and Hesse. So we see the nineteenth century making a good beginning by utilizing as a public health measure the recently established prophylactic principle of Jenner.

The nineteenth century is an interesting period in the world's history because of the rapid progress made in all the sciences. Progress in the first half was not rapid but from a medical standpoint it was an interesting and important time. Many of the great schools and universities were founded. Gas, chloroform and ether anesthesia were introduced.

The number of great and interesting men of this period who contributed by experiment, research and observation, is far too great to be listed. One of the very interesting characters of the early part of the century is William Beaumont, who spoke of himself as a "humble inquirer after truth and a simple experimenter." He was a United States Army surgeon and while stationed at Ft. Mackinac he began a series of experiments on the stomach of St. Martin, a French-Canadian who had recovered from a gunshot wound in such a way as to leave an opening into the stomach cavity.

During the time that St. Martin was under his care Beaumont made a large series of observations amounting in all to 238. His description of the gastric juice itself was so accurate and complete that it has not been improved upon and has been quoted ever since. He studied the digestibility of different articles of diet in the stomach, which remains today one of the most important contributions to practical dietetics. Beaumont's accurate descriptions and careful observations mark him a true follower of the teachings of Hippocrates.

Oliver Wendell Holmes pointed out the contagiousness of puerperal fever thirty years before the germ theory of disease was established.

It was well after the middle of the century before the modern scientific movement began.

In the years from 1870-80 Pasteur in France, Koch in Germany and Lister in England were waging the battle on behalf of the germ theory of disease. It was the beginning of a new conception of disease and it captured the imagination of the whole world. And well it might for out of it came the science of bacteriology and all those vast changes in public health which have proceeded from that science, modern surgery as we know it today, and preventive medicine in its broadest sense.

The science that solved the colossal problem of cleaning cities and making them healthful places to live; those problems of sewerage, drainage, water supply, refuse disposal and housing which challenged the pioneers, no longer confront us, and yet they are the very problems unsolved that made the cities breeding places for epidemics and incubators of disease.

After the establishment of bacteriology as a science the discovery of the specific cause for many diseases followed in rapid succession. Diphtheria antitoxin as a remedy became available in 1894, to be followed by other antitoxins. Vaccine therapy has been developed and typhoid fever can now be controlled by artificial immunity. Biochemistry began to make its contributions and we have salvarsan. Glandular extracts have been made available and endocrinology has become a specialty, and insulin has been discovered. New discoveries have a fortunate way of pushing back man's limitations and giving him a broader point of view and a better understanding of what has gone before; a new discovery in medicine, even when it is of epoch making importance, is usually just one more fact added to knowledge that has already been recorded.

A good example in point is the discovery of insulin. To have all the facts needed for a proper understanding of the knowledge that led up to the hypothesis under which Banting carried on his experiments we must go back to 1590 when the compound microscope was discovered. A hundred years later the microscopic study of anatomy—histology—was made into a science by Malpighi. The third fact was added about 200 years later (1869) when Paul Langerhans discovered in the pancreas the island-like group of cells that bear his name. Now our facts come faster. We wait only twenty years for the next one which was added by von Mering and Minkowski, in 1889, when they produced diabetes in dogs by removing the pancreas; and four years later Laguesse suspected the islands produced an internal secretion but he did not connect it with disease. Opie added another fact in 1901 when he demonstrated that the islands had a function which was no less than the preven-

tion of diabetes. This was indeed an important discovery, but to utilize it therapeutically baffled physiologists and physicians until Banting with the help of his friend Best, solved the riddle.

The discovery was not by accident but by patient, scientific endeavor of scientists who were familiar with all that had been learned about the pancreas up to their time. They added the last fact that gave to the world as a remedy the internal secretion of the pancreas. They write: "The hypothesis underlying this series of experiments was first formulated by one of us in November, 1920, while reading an article dealing with the relation of the islets of Langerhans to diabetes. From the passage in this article which gives a resume of degenerative changes in the acini of the pancreas, following ligation of the ducts, the idea presented itself that since the acinus, but not the islet tissue degenerates after this operation, advantage might be taken of the fact to prepare an active extract of islet tissue." This then, is the history of the research that culminated in the discovery of insulin, a remedy that gives us control of diabetes to a degree that adds years of health and activity to thousands of our best and most useful citizens.

The great instruments of progress for mankind are research—the discovery of new knowledge—and education—the passing on of the store of accumulated wisdom to our followers.

It is only since the Renaissance period that man can claim to have dominated the earth. But during this period of four or five hundred years man's progress has been exceedingly rapid. The whole of the western world has been rediscovered and civilized, the population has increased enormously, the invention of steam and gas engines and the discovery of electricity have placed sources of energy in the hands of man equal to many times the man power of the world; with the aeroplane he has spanned the oceans, with the submarine he has traveled under them, and he has drilled his tunnels through mountain ranges. Many diseases have been eradicated, and the wild beasts which put terror into primitive man now survive only under government protection. Indeed, man has gone into every nook and corner of this earth, and his devices have penetrated not only wherever there is life, but beyond into the air above and the rock below, the frozen north and the torrid desert.

After thus considering the progress of mankind, let us stop and think what would happen to humanity if some force should prohibit the manufacture of all antitoxins, vaccines or other sera, together with the use of all medicinal

drugs. Is there a place in the world that will picture for us conditions that might eventually intervene?

A good example of what the picture might be is found in the September *Review of Reviews* in an article by Maurice Dunlap, of the United States Consular Service, "Carrying the Gospel of Health to Haiti." He says in substance: "Nine years ago, after a treaty between the Republic of Haiti and the United States, the gospel of health came to Port au Prince, the capital of the Negro Republic, and Port au Prince, smug and glistening in the first rays of the sun, seems in need of no sanitary redemption, although sanitation was unknown before 1915. But this gospel is to be carried to a village far inland, Fond Verrettes, by Dr. Peterson and Dr. Kennedy, of the United States Navy.

"On our way we pass many places which show that the gospel of sanitation is creeping into the island. At last we reach Fond Verrettes—the last outpost in our campaign.

"We dismount the jaded horses, their pack-saddle removed, are led to pasture. But the doctors show never a sign of fatigue.

"Much sickness here? queries one, addressing the native police inspector in Creole. "Only—some," answers the inspector. Even less pessimistic is a woman in the bazaar when addressed the same question: "Non." She smiles and shakes her head.

"What about this?" Dr. Kennedy points to the neck of a man about to make a purchase; he bends his head; there is a mass of raw sores. The woman smiles and shrugs her shoulders.

"Fever here?" questions the doctor. "Non"—smiles and shrugs from the saleslady. A girl passes by. She is clothed in ragged blue calico. The doctor touches a scrawny arm. "Are you ill?" he asks in a kindly manner. The young woman hesitates a moment. "Not very well," she answers. The doctor notes the swollen glands of the arm. "Syphilis" he says to his companion; and to the girl, "You are sick, but we have come to cure you."

"And thus the news is spread up and down the main street of that dirty village: the doctors have come! The people leave their huts. They swarm over piles of fly-infested rubbish that lie in the street, they bring out human remnants that had been hidden away—children with bodies eaten by sores, old people propped in chairs.

"Magnificent surroundings of pine clad mountains, clear blue sky above, with all God's gifts of nature, was ever a place so God-forsaken? After an afternoon's inspection it became evident that at least half of the populace

have syphilis, while the ravages of smallpox, malaria and intestinal worms are everywhere.

"Why select this forlorn place to bring the gospel of sanitary living?"

"It is the last outpost of the sanitary campaign in Haiti and because thousands swarm down from the mountains on market day, by establishing a clinic there the whole district could be cleaned up in a short time."

I am sure it is pleasant to learn that Haiti, the first of the western world to be discovered by Columbus in 1492, is the recipient of the "Gospel of Health" as thus described.

In the last analysis, humanity has but one supreme problem, the problem of kindling the torch of enlightened creative effort, here and there and everywhere, and of passing on, for the enrichment of the lives of future generations, the truth already discovered—in two words, the problem of research and of education.

In our day it is no longer sufficient to cite the greatness of the past as standards of human thought and achievement. Today men have lifted their faces to the sun and are peering, with their minds' eye, into the yet undiscovered glory of the future. This is true not only in the sphere of science, education and social relations, but also in that of medicine.

Perhaps some future generation will find that the earth itself is the Garden of Eden, lost by man's ignorance, and restored by scientific research to be again a paradise of delights for the human race.

Shelton Building.

TULAREMIA

REPORT OF A CASE

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Recently and at various times an isolated case of the new and much written about disease—spoken of by lay people as rabbit fever—tularemia, has been mentioned in *THE JOURNAL*. However, these reports are from localities so scattered and are so few in number, that I believe the report of one in this community would be interesting.

Case No. 1234, J. B., aged 49, came into the office January 3, 1929, complaining of general malaise, fever, sweating and headache. Inasmuch as several cases of influenzal-lagrippe were reported in the community it was thought that this was the reason for his ill feeling. He, however, in a tone of some anxiety offered the information that he was afraid he might have the "rabbit fever" which he had read about in the papers. He then showed me a lesion on his finger and stated that he had cleaned a rabbit at the produce house three days previously and at that time pricked his finger with a piece of jagged bone. Having this information a diagnosis of tularemia was made and the case watched closely for

further symptoms. Twenty-four hours later the fever had gradually risen to 103.2 with an accompanying rise in the pulse rate. He was markedly prostrated, sweating profusely and had two chills during the day. The morning of the third day there came a decided fall in his temperature and he felt better for a few hours, but on the morning of the fourth day there was a rise of temperature to 104.5 and pulse to 140 with another chill. The third day fall and the fourth day rise is one of the symptomatic features of this disease. The lesion on the finger during this time had made noticeable changes and was a textbook picture. Appearing at first as a nodule, indurated and hard, the lesion a few days later seemed to soften, blebs formed, filled with a hemorrhagic purulent pus. Up to this stage the lesion had been very painful from hand to axilla. With the formation of the bleb and its spontaneous rupture the pain in the finger lessened. From this stage the lesion went into the ulcer stage with its characteristic indurated border, saucer-like depression and purulent discharge. The area surrounding the lesion had taken on a purple-violaceous hue. During the progression of the lesion from stage to stage there developed a very large, tender, painful, indurated lymph node in the axilla. The gland remained indurated throughout the course of the disease and never suppurated. After three to four weeks the fever reached a normal level ending by lysis. The patient showed the effects of the fever, sweats and chills such as one would expect from such a violent infection. He is only now (March 6, 1929), sitting up and it will be sometime before he can return to work.

Little has appeared in reports on the treatment thus leaving the general impression that symptomatic treatment as the case requires is about all that need be done. In handling this case the following line of treatment was followed: 1. Immediate bed rest, saline catharsis, forced feeding of fluids, fruit juices and alkalization with citrocarbonate. 2. Hot magnesium sulphate packs to finger and axillary adenopathy. 3. Sodium salicylate in large doses thirty to forty grains as patient could tolerate. Intravenous sodii salicylate gr. . . . when stomach was disturbed. After each injection a fall in fever was noted (there was no sign of reaction from the medicine in the vein). 4. Dilute mercurial ointment, one dram, was rubbed over an area of skin once a day. 5. Every other day 7½ grs. sodii cacodylate was combined with the sodii salicylate, administered by the intravenous route. 6. During convalescence the patient was placed on tablets triple arsenates with nuclein.



Fig. 1. Tularemia. Ulcer on finger.

WASHINGTON UNIVERSITY CLINICS

SELECTIVE DISTRIBUTION OF PORTAL BLOOD IN THE LIVER

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AND

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Presented at the Washington University Medical Society, February, 1929.

In unicellular animals all the various activities of life must be conducted within the single cell, but as the organism becomes complex there is greater and greater differentiation until some groups of cells lose their general capabilities and perform strictly limited and highly specialized functions for the entire body. In this partition of work the cells of the liver have retained an unusually general and varied activity. They elaborate in the production of bile an important digestive fluid and also excrete substances, such as bile pigments and cholesterol. They play an essential part in the storage of glycogen, in the regulation of the sugar concentration of the blood and in the conversion of lactic acid into carbohydrate. They are active, also, in protein metabolism deaminizing amino-acids, converting ammonia into urea and destroying uric acid. Their function in the detoxication of foreign organic material presents an interesting field and their role in governing the relationship between glycogen and fat storage is just beginning to be appreciated.

Throughout the liver one part is anatomically so similar to all other parts that it has been generally assumed that its many physiological activities are shared equally by all of its cells. The possibility of a considerable differentiation of function is suggested by studies of the distribution of portal blood supply in the liver.

A few experimental and clinical investigations have previously suggested the possibility of a selective distribution of the portal blood. The evidence in favor of this phenomenon, however, has not been convincing or accepted. In a recent study^{1 2} we have found that when trypan-blue, a dye, is dissolved in blood serum and injected into tributaries of the portal vein of dogs the dye is transported to fairly constant and definite areas in the liver. The site varies according to the tributary of the portal vein into which the dye is injected. The site of the injection of the dye and the part of the liver to which it is conveyed by the portal blood stream may be summarized as follows:



Fig. 1. Portal system of the dog showing main tributaries and mode of termination of vessels at hilum of the liver. 1, portal vein. 2 and 3, right and left branch of the portal vein, respectively. 4, main mesenteric vein. 5, small mesenteric vein. 6, splenic vein. 7, gastric branch of splenic vein. 8, lower pancreaticoduodenal vein. 9, upper pancreaticoduodenal vein. 10 and 11, right and left branches of the small mesenteric vein. 12, enteric branches of the large mesenteric vein.

Injection of Dye Into Splenic Vein.—Almost the whole of the left half of the liver was colored by dye. A limited area of the upper part of the extreme right lobe of the liver constantly received a portion of dye. The rest of the liver retained its normal chestnut color.

Injection of Dye Into Gastric Vein Near Lesser Curvature.—The whole of the left half of the liver was uniformly stained by the dye. The line of separation between right and left halves was sharply demarcated and thrown into striking



Fig. 2. Dog's liver, drawn from a specimen, to illustrate the distribution of trypan blue after injection into a gastric branch of the splenic vein. Black area denotes the part of liver stained by the dye.

ing contrast by the unilateral staining of the liver.

Injection of Dye Into the Upper Pancreatic Duodenal Vein Which Drains Most of the Head of the Pancreas and the Upper Part of the Duodenum.—The dye was constantly carried to the right side of the liver. The two lobes on the extreme right of the liver were most deeply stained. A very small amount was deposited in the right border of that lobe which adjoins the two most lateral lobes.

Injection of Dye Into Lower Pancreatic Duodenal Vein.—Dye was carried mainly to right side of liver. Lobe immediately to right

right of liver. Little carried to lobes of left side.

An explanation of the selective distribution of the portal blood in the liver is offered by the visual demonstration of "stream lines" or separate currents in the transilluminated portal vein after the injection of dyes. These "stream lines" were demonstrated by placing immediately behind the portal vein a small, powerful light which transilluminated the interior of the vessel. When trypan blue was injected into various branches of the portal tree sharply defined intraportal currents could be seen. From these experiments it would seem that there are in the portal vein at least three main blood currents,—one from the splenic vein, one from the large mesenteric vein, and the other from the small mesenteric vein. Apparently, these currents transport blood from the periphery of the portal system to the liver in such a way that, in general, there is little intermingling of the three "stream lines" in the portal vein.

It would be reasonable to expect that, if there is a "stream line" in the portal vein and a selective distribution of portal blood in the liver, there might also be differences in the character of the bile from various parts of the liver. Fortunately the bile ducts of the dog are so distributed that it is possible to collect bile from the two portions of the liver. We have been able to intubate the bile ducts and to collect the bile separately from the two sides of the liver over a period of 48 hours. The animal was then sacrificed and the two different areas of the liver from which bile was collected were weighed. Chemical analyses from the collected samples of bile revealed that although the left lobes of the liver elaborate a bile of higher concentration, the right lobes produce a larger volume of bile and greater weights of total solids, pigments and bile per gram of liver tissue. These findings indicate that there may be varying physiological activity in different parts of the liver during the same period of time.

These experimental findings may explain some clinical and pathological observations. Well marked differences in the two sides of the liver have been noted a few times at operation. Unilateral involvement of the liver has been found at autopsy. Metastatic carcinoma is occasionally localized in one or the other lobe. Likewise, atrophic and hypertrophic changes may affect chiefly one lobe. We do not have an instance of a liver abscess being definitely associated with a lesion in a particular region of the gastro-intestinal tract although such cases have been reported. Some investigators



Fig. 3. Distribution of dye after injection of a mesenteric vein of upper jejunum of dog.

of gallbladder always showed deeper staining than any other part of liver.

Injection of Dye Into Upper Jejunal Veins.—Bulk of dye registered itself in two extreme right lobes of liver. Occasionally, scattered spots of coloration were found in the left half of liver.

Injection of Dye Into Vein of the Meso-appendix.*—Dye transported to all parts of liver. Large outer left lobe of liver generally showed greater deposition of dye than other parts. In some dogs the right half of the liver showed greater amount of dye than left.

Injection of Dye Into Vein in Mesentery of the Descending Colon.*—Dye distributed throughout liver. Greater amount was always evident in the left side, more especially in the large lobe of the extreme left.

Injection of Dye Into Large Mesenteric Vein.—Dye deposited in two lobes at extreme

* In many dogs the right and left branches of the small mesenteric vein do not unite in a single trunk but enter the large mesenteric vein separately. When the vessels had a separate termination it was found that injection of dye into the right vein resulted in a more liberal distribution of dye in the right side of the liver.

have found amebic abscess to have a predilection for the right side.

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DUODENAL ILEUS, ULCERATIVE COLITIS, AND PELLAGRA ASSOCIATED IN THE SAME PATIENT

COMPLETE CURE FOLLOWING DUODENO-JEJUNOSTOMY

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Presented at the Friday Morning Clinical Conference.

This case shows an unusual succession of diseases during a period of ten years, and, aside from the spectacular recovery following her last abdominal operation, the case illustrates the relationships of several gastro-intestinal and metabolic diseases. It is perhaps best to discuss these after the case has been presented.

A married woman of 33, a native of Arkansas, was brought to Barnes Hospital on February 6, 1928. She was complaining of severe diarrhea (8 stools daily) and persistent vomiting. She had pains in the arms, legs, and right upper quadrant of the abdomen, an eruption about the mouth and a sore tongue.

Her history presented an astonishing series of severe illnesses and serious operations. At the age of seven she contracted typhoid. She had malaria several times and was told that plasmodia were found in her blood as late as 1927, the year previous to her admission. Her menses which began at the age of 15 were always irregular, profuse and of long duration. In 1913 a dilatation and curettage was performed because of menstrual cramps, but caused no relief of her symptoms. In 1914 her appendix, an ovarian cyst, and the left ovary and tubes were removed. During her childhood she had inflammatory rheumatism and frequent attacks of tonsillitis. Her tonsils were removed in 1916. She was married in 1917, at the age of 22, and bore two healthy children, had one stillbirth and one miscarriage at two months. In 1917 she suffered a severe attack of diarrhea. Amebae were found at the time of onset and on subsequent examinations. In 1918 she had influenza and was desperately ill. This kept her in bed for thirteen weeks. It was followed by pleural pain, night sweats and cough. She was told that a liver abscess had ruptured into her lung. In 1922 she had jaundice, with nausea, vomiting, and pain in

the right upper quadrant. Two years later she had a laparotomy for prolapsed uterus. Her diarrhea, which had commenced in 1917, had never disappeared. Her appetite was usually good and she ate well, but she easily became nauseated and frequently vomited. In 1927 the right 8th rib was removed and her liver was explored for an hepatic abscess. None was found but in September, 1927, a similar operation revealed an abscess which was successfully evacuated. Two months later she had a gastroenterostomy for duodenal ileus. This was ineffectual and was soon followed by another operation which did not relieve the obstructive symptoms. After this operation and until the time of admission she vomited the greater portion of everything that she took. Her diarrhea was extremely troublesome. The watery stools were mixed with blood and mucus, and frequently contained food which had been eaten two to four hours previously. The stools were accompanied by intermittent griping pain over the entire abdomen. Medication consisting at various times of emetin, stovarsol, bismuth and arsphenamin had been of no permanent benefit. For three years she had been troubled by a sore tongue. During the three weeks preceding admission an eruption had appeared over the nose and above the mouth.

At the time of admission she was acutely ill. Examination showed a profound emaciation. Her normal weight had been 129 pounds, but when first seen she weighed only 66. She had lost 35 pounds in the last year. There was hyperemia with superimposed, small, white papules and encrusted pustules surrounding the mouth and over the chin, also at the side of the nose and involving the nasolabial fold and the margin of the nares. The tongue was red, clean and smooth. Many small ulcers along the lateral margins took the form of crevices. The teeth were in fair condition. The pharynx was congested. The chest showed limited expansion. The seventh and eighth ribs were absent and a long operative scar was seen over the area. The heart showed no abnormalities but there was a low blood-pressure, 97/70. Over the abdomen there were several operative scars. The liver was felt two fingerbreadths below the costal margin and was exquisitely tender. There was also tenderness in both flanks. Urine examination was negative. The red blood cell count was 4,160,000; the hemoglobin 69 per cent. White blood cells numbered 6,600 with a normal differential count. The stools were of a foul odor; the guaiac test was strongly positive but no amebae could be found.

Proctoscopic examination on February 8 revealed a reddened, granular appearance of the

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Fig. 1. This photograph reveals the almost terminal wasting which existed at this time. The patient was not weighed, but she could not have been over sixty pounds. A contrasting photograph after recovery could not be secured. It would show a healthy, plump body without other evidence of the previous state than the abdominal operative scars.

rectal mucosa which did not bleed easily. There were no ulcerations or growths.

The fluoroscopic examination showed a dilated duodenum with a hyperperistaltic pendulum motion from a relative partial obstruction in the distal third portion of the duodenum and



Fig. 2. The barium meal observation at the six-hour period. Film made with the prone position. A. Stomach, B. Stoma. C. Limits of duodenum. The duodenum markedly dilated as evidenced by the transverse markings from the separated plicae circulares. Retained barium has settled from the non-opaque retained secretions to the dependent wall. Canalization of the distal and proximal arms of the intestinal loop of the gastro-enterostomy has occurred for about an inch, but there was only scant clearance into the distal intestine. The extreme motor impairment of stomach and duodenum occurs by a chronic duodenal obstruction and a postoperative obstruction of the intestinal loop used for anastomosis. The stoma is patent.

near the site of the former gastro-enterostomy which was functioning very inadequately. There was only slight canalization of the proximal inch of the distal loop. The colon was studied independently with barium enema, and showed a tubular, somewhat narrowed contour of the midtransverse colon coinciding with the area of previous operation. There was a question whether the colonic condition was a result of postoperative peritoneal conditions or of the chronic colitis. The cecum and ascending colon were entirely hypotonic and slightly dilated.

The gastric motor insufficiency was of such degree and the duodenal dilatation and obstruction were so great that early operative interference seemed necessary as the only measure which would adequately interrupt the patient's starvation. Five days after admission she was transferred to surgery. A transfusion was given and on February 14 Dr. Evarts Graham did a duodenojejunojejunostomy under twilight and ether anesthesia. Many adhesions were found



Fig. 3. Barium enema showing the irregular narrowing of transverse colon due to both the colitis and involvement in the upper abdominal postoperative condition. The sigmoid colon shows the anastomotic condition of colitis, but with only slight narrowing of its lumen.



Fig. 4. The barium meal observation three months post-operative. Picture made almost immediately after ingestion and shows the prompt emptying of the stomach through both the duodenojejunostomy and the gastro-enterostomy, chiefly by the former. The clinical status was excellent at this time.

between the different viscera and between the viscera and the abdominal wall. The gastro-enterostomy opening of the former operation was found with difficulty. The duodenum was found to be about twice as large as the colon. The pylorus which seemed normal was adherent to the gallbladder from which it could be easily separated. The gallbladder was not diseased. The rest of the abdomen was not explored because of numerous adhesions. The duodenum was dilated as far the ligament of Treitz but the exact cause of the obstruction was not determined. The distal portion of the duodenum was anastomosed under the colon to the loop of jejunum which was just distal to the gastro-enterostomy.

The postoperative course was variable and stormy. Her pulse was often as high as 160 and the temperature ranged from 39 to 40° with frequent chills. Large and repeated doses of morphin, dial and other sedatives were required to keep her quiet. Another transfusion was given four days after the operation. Saline was administered subcutaneously on numerous occasions. Although she suffered for several days from frequent vomiting, every effort was made to maintain a high vitamin intake. Tomato juice, brewer's yeast, cod-liver oil and large doses of dilute hydrochloric acid were administered daily. Under this treatment her



Fig. 5. Barium enema three months postoperative shows restoration of the usual anatomical characteristics of the bowel, except for the atypical contour of the mid-transverse colon which is an influence from postoperative conditions in the operative field.

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condition gradually improved but after three weeks she still had numerous liquid stools. By April 23 her weight had increased to 79 pounds.

DISCUSSION

When this case came to the last operation there was present a state of general inanition and dehydration, along with which had developed pellagra. The colon exhibited a condition of idiopathic ulcerative colitis, of which the picture was somewhat varied by the colonic disturbances incident to pellagra. One is sometimes inclined to doubt in these prolonged cases of colitis, any antecedent history of amebiasis, but in this case there is every reason to believe the authenticity of the early diagnostic findings and the subsequent development of hepatic abscesses. The initial diarrhea was of amebic origin. This being so determined the case may then be looked upon as one in which there was, after eradication of the amebic infestation, a residual, idiopathic colitis which developed into the ulcerative type, and which persisted until the factors interfering with proper nutrition were corrected. The failure of amebicidal drugs in the later stage of the dysentery should have suggested its changed character from amebic to idiopathic or avitaminotic. Amebae do not become emetin-fast.

The cause for the original duodenal ileus has not been determined. It is probable that it was precipitated by a loss of weight from other causes and then became itself an additional factor in a vicious circle. When the patient entered this hospital there was, along with this duodenal obstruction, an obstruction in the proximal jejunum at the point of gastro-jejunostomy, the stoma of which functioned very inadequately. From the time of this gastro-enterostomy the case had progressed rapidly toward a terminal inanition with increase in the diarrhea and with the skin and mucous membrane changes characteristic of pellagra. Pellagra has occurred in two other of my cases of ulcerative colitis. The diarrheal colon of pellagra does not show early ulceration.

Her condition at the time of operation was altogether unfavorable as to its outcome. The preparatory transfusion and the one post-operative were most effective measures in carrying her through. After the duodeno-jejunostomy was performed it was ten days before there was any notable retained balance of ingested food and fluid; and this demonstrates very well how an extremely dilated gut, whether duodenum or stomach, will need days of protection before recovering adequate tone and sufficient intraluminal pressure to effect emptying. The gastro-enterostomy was originally done for the duodenal ileus for reasons of technical expediency. Duodenojejun-

ostomy at that time would have been the procedure of choice. After these first critical ten days and when the patient began to show the benefit of ingested food and fluid, there was a continuous amelioration of all symptoms and signs. The forced intake of vitamins through tomato juice, brewer's yeast, cod-liver oil, and large doses of dilute hydrochloric acid, in addition to large total calories, were determining in her recovery. One of the last manifestations to disappear was the swelling of the ankles and feet. In addition to this swelling, the patient, after she had recovered sufficiently to be sensible of details, suffered very severe aching pains in the extremities and localized sweating, somewhat of the hands, more especially of the feet. This increased with exercise, and prevented her rapid recovery of walking. The patient has been seen recently by me and weighs 107 pounds. She shows a very excellent picture of health and has few complaints. She has vomited occasionally, with fatigue and nervousness. She complains of pain over the right side, localized to the scars of the liver drainage operation. There is still some pain in the feet accompanied by some sweating of the extremities.

These three clinical entities of idiopathic ulcerative colitis, duodenal ileus, and pellagra have no usual association or sequence. They were in this case aggravating complications for each other. Pellagra is a sequel to states of inanition induced by various diseases and has been recorded as resulting from psychosis, starvation, lesions of the stomach¹ and carcinoma of the bowel.^{2,3}

This case illustrates the spectacular help afforded by a brilliant surgical interference in a situation involving great technical obstacles and in a patient presenting the most extreme operative risk.

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FIVE—WASH. U. CLINIC—Strauss HEREDITARY EDEMA (MILROY'S DISEASE)

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Presented at the Friday Morning Clinical Conference.

The following cases are presented not so much because of their rarity but because the disease which they represent frequently causes confusion in diagnosis and because they emphasize the importance of careful analysis in all types of edema.

Case 1. In the summer of 1927 Mrs. G., a woman of 32, presented herself at the Washington University Dispensary complaining of "heart trouble" and swelling of the legs. She told us that her father had had heart and kidney trouble and that one sister had heart trouble. Her mother was said to have had, from girlhood, swelling of the legs similar to hers.

Mrs. G. was married at an early age and had five children, one of whom, Jimmie, is presented here. One of her daughters had acute rheumatic fever and pericarditis, another is suffering from undernutrition. The other two children are well.

She dates her present complaint of swelling of the legs from about the age of 12, when she was examined by a physician who said she had "heart trouble" with a leaking valve. During strenuous effort she has slight dyspnea and occasional sticking pains about the heart. The edema, and you will note it is a true pitting edema, has been continuously present since the age of 12, diminishing considerably when the patient is not on her feet but always recurring. There is a history of "erysipelas" of the left leg 10 years ago (possibly an instance of one

of the acute crises of her disease rather than a true erysipelas).

Examination shows a healthy appearing woman with pitting edema of the legs from the knee down. The heart is not enlarged to percussion or X-ray examination. The rhythm is regular, rate 76 per minute. There is a very faint, short systolic murmur at the apex. Arteries are normal, as is the blood-pressure (126/70). The lungs are entirely clear. Liver edge is palpable just below the costal margin. Pelvic examination shows slight retroversion but not sufficient to cause a pressure edema. Likewise there is some flat-foot but not enough to cause any considerable swelling of the ankles.

Repeated urinalyses have shown no albumin, sugar or casts. Phenolsulphonephthalein excretion is 50 per cent in two hours. Non-protein nitrogen is 25 mgm. per cent. Basal metabolism was +16 per cent in June, 1926, and +4 per cent in November, 1927. RBC 4,900,000; Hb. 80 per cent; WBC 7,000. The electrocardiograms have been normal. Wassermann and Kahn reactions are negative. Examination of the blood at midnight revealed no filaria.

In an attempt to influence the edema we have tried digitalis, salt-free diet, thyroid extract and various diuretics, such as theobromin sodium salicylate and theocin, without effect.

Case 2. Jimmie G., a son of Case 1, is 15 years old and came under observation only six weeks ago. At that time his only complaint was swelling of the lower legs which had been noticed less than two months preceding his admission to the clinic. The edema does not bother him but because of a similar condition in his mother he was brought to the clinic for observation. There is no dyspnea, pain, palpitation or cough.

He was born with a cleft palate but without harelip. This was splendidly repaired by a double operation when he was two years old. Interestingly enough his grandmother who had the edema (as described in his mother's history) also had a cleft palate without harelip.

Examination shows a marked pitting edema below the knees in both legs. The heart is not enlarged; the rhythm is regular and the rate about 80. There is a faint, short systolic murmur at the pulmonic area.

The spleen is palpable. There is a scar of the operative repair of the cleft palate. The remainder of the physical examination is negative.

Urinalyses have been repeatedly negative. The phenolsulphonephthalein excretion is 50 per cent in two hours; non-protein nitrogen is 25 mgms. per cent. Wassermann and Kahn



Fig. 1. Case 1 showing pitting edema of legs.



Fig. 2. Case 2 showing edema of lower extremities.

reactions are negative. RBC 4,300,000. Hb. 86 per cent; WBC 9,000. Electrocardiogram is normal.

The history and examination of these two patients, mother and son, practically establish the diagnosis of hereditary edema, often called Milroy's disease. It is significant, however, that Mrs. G. believed for twenty years that she had heart trouble because she was so diagnosed at the onset of the swelling and because no one had corrected this impression up to the time that she first appeared in the clinic.

Case 3. Another typical case of hereditary edema has recently been admitted to Barnes Hospital,—Mrs. W. C., 33 years old. Her complaints are (1) swelling of the feet and legs of 24 years' duration; (2) skin eruption of the hands and feet of 19 years' duration (diagnosed by Dr. Wm. Mook as dysidrosis); (3) attacks of acutely swollen joints preceded by chills and fever occurring from time to time for 24 years. The edema originally appeared following one of these attacks and has persisted since. The hands and arms have also been involved in these acute attacks of red, swollen, painful joints and present a chronic edema somewhat less extensive than that of the legs.

There is slight dyspnea noted on climbing steps but no cough or precordial pain.

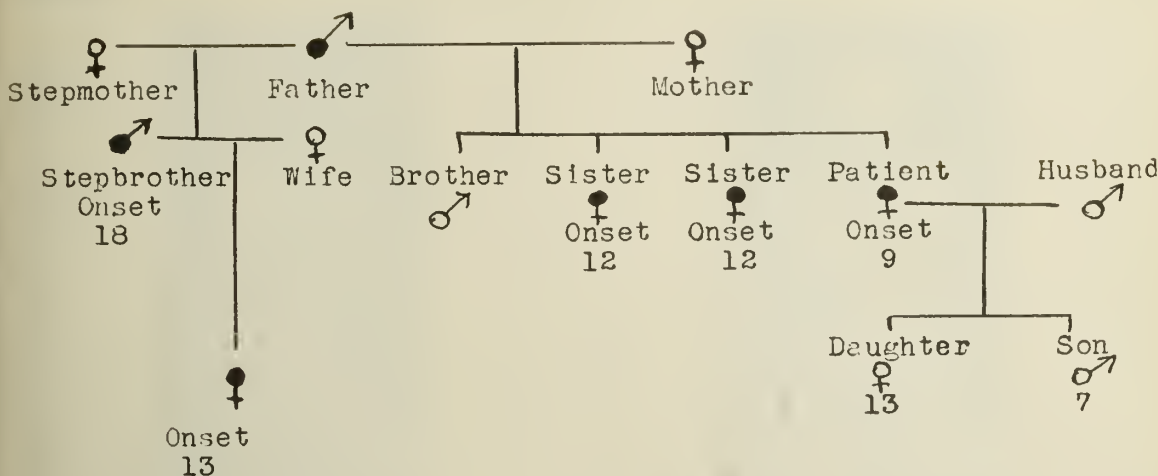
The only significant findings on physical examination are an exfoliative dry eruption on a reddish base involving various parts of the body surface and an indurated edema of the forearms, hands, legs and feet. The heart is not



Fig. 3. Case 3 showing edema both of legs and arms.

enlarged; the sounds are normal; no murmurs are present. The rhythm is regular and the rate is 88. B.P. 138/88. Urinalyses are repeatedly negative. P.S.P. 78 per cent in two hours. N.P.N. 25 mgm. per cent. Wassermann and Kahn tests of the blood are negative. RBC 5,100,000; Hb. 90 per cent; WBC 13,000. Differential count normal. Basal metabolism is minus 6 per cent. Electrocardiogram shows left ventricular preponderance.

We were able to elicit from this patient a family history complete through three generations. This is presented in the diagram and indicates the marked hereditary element. The record is particularly interesting since it shows that the patient's father married twice and transmitted the tendency to his descendants by both wives. In the diagram the affected individuals are represented in black. The age at which the edema appeared is also shown.



DISCUSSION

Idiopathic edema has long been described in the literature under a variety of titles, such as chronic trophedema, lymphatic obstruction and non-parasitic elephantiasis. The familial and hereditary tendency was first emphasized in 1892 by Milroy¹ who described four characteristics of the condition; first, congenital origin; second, limitation to the lower extremities; third, persistence of the edema; fourth, absence of constitutional symptoms. He described the history of 97 individuals in six generations of one family. Of these 22 had edema. Only recently he² has reviewed his original family with information concerning the fifth, sixth and seventh generations. Of 30 additional individuals only two had edema.

Shortly after Milroy's original account, Meige^{3, 4} in France described eight patients in most of whom the edema appeared at puberty instead of at birth. Although it is doubtful whether this variation presents any essential difference in the character of the condition, it is perhaps worth noting that all the cases which we have presented correspond to the description of Meige. Case 1, Case 2 and the mother of Case 1 developed the edema at about the time of puberty. All affected members in the family of Case 3 noted their first symptoms during adolescence.

Our first patient was said to have had an erysipelas at the age of 22, ten years after the onset of her edema. In Case 3 there were acute attacks of chills and fever in which both arms and legs were red and swollen. Hope and French⁵ in their excellent review emphasize the "acute attacks" which characterize the history of many cases in the literature. They also point out that the acute manifestations do not precede or accompany the first appearance of edema. Indeed, the first acute attacks may occur twenty-five years after the edema has be-

come established. Although the redness and swelling suggest, as in our patient, an erysipelas the attacks are usually transient and no patient has died of septicemia.

The condition most often involves the lower extremities. Our third patient illustrates the unusual though not unique occurrence of chronic edema of the arms as well as the legs. (Rapin.)⁶ The hereditary element is not always apparent. In our first two patients the family incidence was not definitely established until the condition appeared in the third generation. Although the cases which Gager⁷ collected at the Cornell Clinic correspond in general to the hereditary form, their histories often fail to show the occurrence of the disease in more than one member of a family. Gager also emphasizes the frequent occurrence of a unilateral form. This type of case has been illustrated in our clinic by a patient whose history I am permitted to report through the courtesy of Dr. Warren H. Cole.

Case 4. This was a girl of 24. Fifteen months before her entrance to Barnes Hospital she noticed that her right leg and thigh were swollen from the ankle to the hip. She considered herself at that time in perfect health. No pain, injury or illness preceded the edema. She learned later that the swelling had been noted by a friend several weeks previously.

No history could be obtained of similar difficulty in other members of the family. Her mother had varicose veins after childbirth which resulted in some edema. Her father and brother who were the other members of her immediate family had no edema or other obvious illnesses.

The patient herself had never been sick in bed. She had had occasional weak spells and had to lie down but had never actually fainted. Her menstrual history started at twelve and presented no important abnormalities.

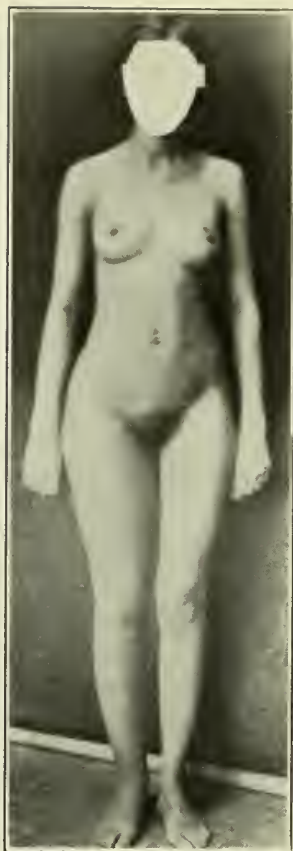


Fig. 4. Case 4 showing unilateral edema.



Fig. 5. Posterior view of Case 4.

During the fifteen months of her disability she noted that the leg changed in size from time to time, being larger at night and when she was very active. She had tried many treatments, such as rest, elevation, baking, diathermy, ultra-violet light and massage. The only beneficial effect was noted after rest and elevation but even this did not reduce the leg to normal dimensions.

Examination showed no abnormalities except the localized edema. There was no emaciation nor was there any history of weight loss. The heart was not enlarged. No murmurs or accentuations could be heard. Blood-pressure was 120/80. Pulse regular, 80 per minute.

Abdominal examination was entirely normal. There were no enlarged lymph nodes in the supraclavicular region or elsewhere.

Vaginal examination showed the uterus in normal position. No masses were felt. There was nothing which could explain pressure.

The edema involved the entire right leg and thigh to Poupart's ligament and extended to the right buttock involving also the right labium.

	Measurements		Left
	Right At time of Admission	After 4 days in bed	
Ankle	23.3	23.5	20.0
Calf	31.0	30.0	27.5
Knee	33.5	33.5	31.0
Upper thigh	53.5	54.0	47.5

The right leg was no longer than the left. There was no evidence of hypertrophy of the digits or of other parts of the same side of the body as might be seen in unilateral hypertrophy or partial gigantism.

The edema was firm and pitted with difficulty. The skin was delicate and showed no brawny induration. The toes were not obviously involved. No varicosities or venous thromboses could be demonstrated.

Laboratory tests on blood and urine revealed no abnormalities. The Wassermann test was negative. The blood showed no filaria.

The possibility that this edema was due to carcinoma affecting the lymphatic drainage was carefully considered but could not be definitely excluded. The patient was, however, in excellent health and no primary site of a carcinoma could be located. Moreover, there are numer-

ous cases of trophedema in the literature which have appeared after puberty, have had a unilateral distribution and in which the history has not revealed any familial or hereditary tendency. According to the published criteria, these can scarcely be called examples of Milroy's or of Meige's disease. But it is important to realize that they may occur without deterioration in general health and that they may have the same excellent prognosis which characterizes the obviously hereditary form.

These conditions cause great anxiety and distress in the mind of the laity both because of the unsightliness of thick ankles and because of the fear of consequences. The last patient had subjected herself to much treatment and would have been quite willing to submit to an operation if it had been advised.

The question of the Kondoleon operation for the relief of idiopathic trophedema has been recently reviewed by Sistrunk.⁸ This consists of the splitting of the deep aponeurosis which theoretically permits anastomosis between superficial and deep lymphatics. It has been successful in relieving a number of cases. In most cases, however, it does not seem justifiable to employ it. Since the patients remain in good general health, its object must be cosmetic and it is questionable whether the scars from the long cuts which characterize the operative procedure are preferable to the swelling.

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IRITIS, IRIDOCYLITIS AND PROLAPSE OF IRIS IN MODERN CATARACT SURGERY

Iritis, iridocyclitis and prolapse of the iris in modern cataract surgery, its prevention and treatment, has been studied by Lloyd Mills, Los Angeles (Journal A. M. A., Dec. 22, 1928). It is his opinion that the treatment of the incision in cataract surgery until recently has been out of line with the treatment of all other presumably clean operative wounds in which the fundamental practice is full suture of the wound in order to prevent infection and to restore normal relations. The failure to suture these operative wounds of the eyes has been the greatest single means of infection from without and of extrusion of the intra-ocular contents, with their serious inflammatory and visual sequelae.

Covering of the wound by a narrow but complete flap of conjunctiva, formed during the incision, or preformed, fully closed over the sclerocorneal wound and securely maintained there by an average of five interrupted sutures, placed with regard to individual wound peculiarities, is preventive of these disasters in modern cataract surgery.

PLEURISY

Dr. O. Scheel, of the Municipal Hospital, Ulleval, Oslo, Norway, cites a case of a woman, forty-two years of age, who, on admission, showed the usual signs of exudative pleurisy, dullness on the left side of the back, increasing toward the base, with marked bronchial breathing in the dull region and absence of tactile fremitus. The actual commencement of the pleurisy may be referred back to a week prior to her admission when she suddenly became ill with shivering and stitch in her left side and from that time on was confined to her bed. Such a beginning is not rare and may remind one of pneumonia. Before the actual commencement of the pleurisy the patient had been unwell for three months and felt pain in her left shoulder, under the collar bone and along the costal margin on the left side. Before attempting to explain the origin of these symptoms, digression must first be made towards a distinct form of pleurisy, namely, *diaphragmatic pleurisy*, in which the pain is felt especially in two places, along the edge of the ribs from the front of the chest round to the back and in the shoulder on the same side. It is not probable that the patient had a diaphragmatic pleurisy for three months. It is more reasonable to suppose that the phrenic nerve in the first three months has been affected at another place, at its passage through mediastinum when it goes just in front of the main bronchus. There are supposed to be three phases in the development of the pleuritic exudate. During the first, fluid is exuded from the blood to the pleural cavity, the exudate increasing; in another, the height of exudation is reached and no more fluid is exuded; and in a third the fluid is absorbed into the blood, the exudate decreasing the disappearing. Doctor Scheel is inclined to believe that the exchange of fluid between the blood and the pleural exudate takes place in another manner and especially in a way similar to that between the blood and edema. He thinks the different localization of pleural exudate and of tuberculosis in the lung tissue has a common cause, the varying elasticity and mobility of the lung tissue in the various parts of the lung. He states, regarding the diagnostics of pleurisy, that they rarely employ exploratory puncture of the exudate, because as a rule it is superfluous and harm may be done by puncture of a tubercle group, thus spreading tubercle bacilli in the exudate. Regarding treatment, confinement to bed is most important. Death rarely occurs during the acute stage and when it does, is probably due to embolism of the lung. After the patient has been free from temperature for fourteen days he is allowed to get up and after discharge should go to the country for three months. Patients with pleurisy are often subsequently attacked by tuberculosis, but it is difficult to give definite figures regarding this. According to statistics, the prognosis after pleurisy is more favorable than is believed, the most dangerous years being the first three or four, the figures for morbidity and mortality being higher for the grown age than for that of childhood.—*International Clinics*, December, 1927.

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THE JOURNAL

OF THE

Missouri State Medical Association

MAY, 1929

EDITORIALS

THE SPRINGFIELD MEETING, MAY 13,
14, 15, 16, 1929

The Greene County Medical Society is making preparations for a great meeting of the State Medical Association May 13-16. The first day of the meeting, Monday, May 13, will be devoted entirely to the House of Delegates. The Council will meet after lunch on Monday during the interval between the sessions of the House of Delegates. The scientific session begins at 8:00 a. m. Tuesday, May 14. All meetings will be held on the roof garden of the Kentwood Arms Hotel. The commercial exhibits will also be housed in this hotel, occupying the large dining room on the lobby floor. All members are requested to bring their pocket cards to facilitate registration and delegates should deposit their credentials with the registration clerk. Certificates or receipts for the purchase of railroad tickets should also be deposited at the registration desk so that a return fare of one and one-half the regular rate may be obtained.

There will be plenty of first-class hotel accommodations at rates published on page 249. Those who care to make reservations ahead should do so through the chairman of the committee on hotels, Dr. W. A. Delzell, 432 Landers Building, Springfield. We are expecting an unusually large attendance.

The Golf Tournament on May 15 is being planned by the Golf Committee. The tournament will be played at the Hickory Hills Golf Club which is one of the finest golf courses in the State. The rules governing it will be as follows: The tournament will be conducted on a handicap medal play basis using club handicaps. There will be two prizes awarded, winner and runner-up. All entrants will be charged a \$2.00 entrance fee. Any one wishing to play at any time other than the day of the tournament may do so by paying a green fee of \$1.00. Full privileges of the club will be extended to those participating.

Sight-seeing trips will be arranged for those interested in visiting the various recreation places near Springfield. Remember that Springfield is in the heart of the Ozarks and during the month of May the scenic drives are very beautiful.

Special entertainment for the members of the State Medical Association and its guests is being arranged for by the Entertainment Committee on Tuesday evening immediately following the close of the scientific session.

The dinner of the secretaries of the county medical societies will be given by the Association on Wednesday, May 15, at 6:00 p. m. in the Kentwood Arms Hotel. All secretaries are urged to attend this meeting and take part in the discussion of subjects presented.

The guests of the Association and the titles of the papers they will read follow:

Dr. Peter Bassoe, Chicago, "Our Present Knowledge of the Psychoneuroses, With Especial Reference to So-Called Neurasthenia."

Dr. Preston M. Hickey, Ann Arbor, Michigan, "Pulmonary Neoplasm."

Dr. H. E. Kleinschmidt, New York City, "Tuberculosis in Childhood."

Dr. Stuart Pritchard, Battle Creek, Michigan, "Relation of Pain to Tuberculosis."

Dr. J. H. J. Upham, Columbus, Ohio, "Fetal Liver Feeding in Aplastic Anemia."

Dr. Philip D. Wilson, Boston, "General Considerations of Treatment of Fractures."

The following committees have been appointed to manage the affairs of the Springfield meeting:

GENERAL COMMITTEE ON ARRANGEMENTS

W. M. West, Monett, Chairman; J. C. B. Davis, Willow Springs; Robert M. James, Joplin.

LOCAL COMMITTEE ON ARRANGEMENTS

H. A. Lowe, Chairman; W. E. Handley, Secretary.

Committee on Hotels: W. A. Delzell, T. O. Klingner, W. J. Wills, Murray C. Stone and Wallis Smith.

Committee on Registration: Guy Callaway, J. E. Dewey, Lee Cox and W. R. Beatie.

Committee on Exhibits: E. M. Fessenden, F. T. H'Doubler, C. E. Feller and W. C. Cheek.

Committee on Golf: C. Bertram Meyer, George W. Hogeboom, R. W. Hogeboom and T. H. Romeiser.

Committee on Auto Transportation: Wilbur Smith, S. F. Freeman, U. J. Busiek and J. P. McCann.

Committee on Reception: Joseph W. Love, J. D. James, Arthur Knabb and L. R. Webb.

Committee on Entertainment: Francis B. Camp, A. W. Gifford, A. L. Anderson, J. N. Wakeman and Robert Glynn.

When purchasing tickets to Springfield ask the ticket agent for a receipt or certificate. Deposit with the secretary at Springfield to obtain one-half fare on return trip.

FARE AND ONE-HALF TO SPRINGFIELD AND RETURN

Arrangements have been completed with the Western Passenger Association for a reduction in the round trip railroad fare to Springfield for our Annual Meeting to one and one-half of the current one way fare on the certificate plan. Members are urgently requested to obtain a certificate or a receipt from the ticket agent at the point where they start for Springfield. This certificate or receipt should be deposited with the secretary at Springfield. If more than one hundred certificates are deposited the rate of one-half fare for the return trip will be granted.

The dates of sale for the tickets entitling you to a certificate going to Springfield are May 9 to 15. These will be validated at Springfield on May 13 to 16 inclusive and will be good for the return trip until May 20.

For those using train from Kansas City, send your reservation to Mr. E. G. Baker, Assistant General Freight and Passenger Agent, Frisco Lines, Kansas City.

For those using train from St. Louis, send your reservation to Mr. Harrison Will, Division Freight and Passenger Agent, Frisco Lines, St. Louis.

When purchasing tickets to Springfield ask the ticket agent for a receipt or certificate. Deposit with the secretary at Springfield to obtain one-half fare on return trip.

HOTELS AND RATES AT
SPRINGFIELD

Members are urged to make hotel reservations in advance of the date of the Annual Meeting so they can secure their rooms as soon as they arrive at Springfield. Reservations should be made direct with the hotels. The Committee on Hotels, however, will be ready to assist any member who is unable to make satisfactory reservation direct. The chairman of the Hotel Committee is Dr. W. A. Delzell, 432 Landers Building, Springfield. The names of the hotels and rates follow:

Hotels	Single Without Bath	Single With Bath	Double Without Bath	Double With Bath
Kentwood Arms (Headquarters)		\$2.50 up		\$4.00 up
Ben Franklin ...		1.50	Suites	7.00 up
Colonial	1.50	2.50		2.50
Frederick	1.00	1.50	2.50	4.00
Ozark		2.00 up		2.50
LaFayette	1.25	1.50	2.00	3.00 up
Marquette		1.50		2.25
Reams	1.50	2.00	2.50	2.50
Savoy	1.50	2.00	2.50	3.00

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TESTIMONIAL TO DR. JOSEPH
GRINDON

Dr. Joseph Grindon's fifty years in medicine were fittingly and impressively observed by St. Louis Medical Society and the medical schools of Washington and St. Louis universities on the evening of March 9 with a gathering which filled the large Medical Society auditorium.

A bound volume of the guests' signatures was presented to Dr. Grindon and a bronze plaque to the Society by Dr. Amand Ravold on behalf of the committee. The plaque, beautifully executed by Victor Holm, of the St. Louis School of Fine Arts, bears a profile of Dr. Grindon and the inscription:

President St. Louis Medical Society 1899.
For Many Years Teacher of Dermatology.
Beloved Physician, Scholar, Friend.

Presented on his Golden Jubilee by his Colleagues.

Felicitations were extended by representatives of the medical schools and, on behalf of the Society, by its president, Dr. Cleveland H. Shutt. The Rev. Alphonse M. Schwitalla, S.J., Dean of St. Louis University School of Medicine, presented an evaluation of Dr. Grindon's life and works from the humanitarian viewpoint, and many affectionate and appreciative letters were read. They included one from a former patient, who wrote: "I don't suppose you remember treating me in 1912. We always think of you as a very kind man and a great doctor. We just want to thank you again for your kindness to me."

Within two years after he entered upon his medical career, Dr. Grindon in 1881 had his first serious encounter with smallpox. Of the more than 550 cases which came to the St. Louis Smallpox Hospital he handled 512. Having of course been vaccinated, he was exposed to smallpox night and day for 20 months with perfect immunity. He has ever been an outstanding exponent of vaccination. He was professor of dermatology in Washington University for many years, and in 1912 accepted his present chair as Professor of Dermatology in St. Louis University School of Medicine. He has been president of the St. Louis Dermatological Society as well as the St. Louis Medical Society, and is president of the American Dermatological Association. He was one of the founders and still is perhaps the most assiduous supporter of the St. Louis Medical Society Library, which is indebted to him for some of its finest possessions. He is, in short, the only type of man who could have won the sort of recognition accorded him by his colleagues on March 9, and this article can most fittingly conclude with the advice for staying young which he gave on that evening, from the summit of his fifty distinguished years in the profession and his seventy wise and honorable years of life:

"Keep in touch with nature. Learn to love the sky and the stars and still water. Nature, the first-born of all, stays always young.

"Associate with young people, especially with children. What is their chief charm if it is not their constantly changing expression—changing because they live in a new world, a world full of wonder? So do we live in a world of wonders. Let us not close our eyes in weariness. Let us keep young as does the child, by learning new things every day and life will never bore us.

"Have friends and love them, because it is they who make this planet habitable. Admit no one to your intimacy except saints, angels and fairies. I know saints of both sexes; the angels all of us have met, and the children, the fairies—"except ye become as one of these"—you all know the quotation.

"Last, and I do not need to tell this to physicians, live in great part for others. 'It is more blessed to give than to receive.' We know that each of us at the last will count his life by loss and not by gain—not by the wine drunk, but by the wine poured forth."

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SPECIAL CARS TO PORTLAND FOR A. M. A. CONVENTION

A number of members intending to go to Portland, Oregon, for the session of the American Medical Association have inquired about the possibility of obtaining enough members to make the trip together in a special train, or special cars attached to the regular train. As yet no definite plan has developed in this direction but if enough members indicate their willingness to leave St. Louis and Kansas City on a certain day and agree on a certain route we feel sure that a special train can be made up. There are quite a number of physicians from Texas, Oklahoma, and other states who will pass through St. Louis and Kansas City on their way to the convention who would be willing to join a train made up in St. Louis.

There are several routes that might be followed, namely, the Wabash and Union Pacific, the Missouri Pacific and the Burlington. The secretary of our Association will be glad to receive letters from members interested in this project and if a sufficient number show a desire to travel together he will be glad to perfect arrangements for the occasion. In your letter please state what day you can leave St. Louis or Kansas City and what route you prefer for the trip.

SHACKLING YELLOW FEVER

Medical science draws ever near the day when it can write "finis" to the heroic epic of yellow fever. No struggle waged solely for the good of all mankind has a longer or nobler list of martyrs, from Dr. Jesse W. Lazear, who died in submitting himself to mosquito inoculation in 1900, to Noguchi, who died of yellow fever recently in West Africa. Slowly and in the face of death has every advance been made. But advances are being made, and the latest is the work of a Missouri man, Dr. E. V. Cowdry, professor of cytology in Washington University School of Medicine.

Dr. Cowdry and Dr. S. F. Kitchen, of the Rockefeller International Health Board, in research under the board in New York, have found apparently conclusive evidence that there is only one type of yellow fever. They found similar cytological effects in liver sections whether the infection was of the "South American type" or the "West African type," and when these sections were compared with the human liver sections preserved from the last North American epidemic, that at New Orleans in 1902, no discernible difference was found. Furthermore, additional evidence in the intracellular action of the disease pointed its similarity to other virus diseases. Many scientists are working under the International Health Board at many phases of this great problem. None has been able to find under the microscope any germ as the causative agent, and none has found any difference in the various geographic types. On the contrary, work under way in immunology provides corroboration for Dr. Cowdry's conclusions. Dr. Cowdry is to continue his research in Washington University laboratories with Dr. Kitchen, who is coming to St. Louis from New York, where they began the work.

Thus, one by one, links are added to the chain of demonstrable facts wherewith science ultimately is sure to shackle this menace of the tropics forever. It has not been long since the discovery that convalescent serum had value in treating yellow fever. It is less than 30 years since the commission headed by Walter Reed found that the yellow fever mosquito alone carried the infection, enabling Col. Gorgas to report, in November, 1901, at Havana: "Last year we had, during this month, 214 cases and 54 deaths. This year the last case of yellow fever occurred on September 28, that is, we have gone over two months without a single case or death belonging to Havana. . . . This result I consider due to the system introduced last February, of killing infected mosquitoes in the neighborhood of each point of infection as it developed."

Thirty years is a brief while in comparison

to the recorded 370 years when yellow fever raged unchecked. The efforts to conquer it have seemed discouraging at times in those 30 years and at this moment, when much has been learned about it within a twelvemonth, an epidemic rages in Brazil. But, notwithstanding, the accomplishment of 30 years has been little short of miraculous. Surely yellow fever, which has been driven from North America, soon will be driven from the face of the earth.

PROBLEM OF THE DEAFENED

A possibility for great and immediate service which should be pointed out to every philanthropist is the necessity for the American Otological Society to raise \$500,000 at once to carry on research initiated in 1926 with a \$90,000 grant of the Carnegie Corporation. The work is devoted to a specific objective, the solution of the formidable problem of otosclerosis. The Carnegie grant was awarded to cover a five-year period with annually decreasing installments "for continued and correlated research," on a basis postulating sufficient public interest to build up an independent fund to take over and expand the work. The Society is endeavoring to raise \$2,500,000, of which a half million is required now to prevent interruption and consequent waste of the effort already made.

Every physician knows the peculiar knottiness of the problems of deafness, and the almost insolvable problems of social and economic adjustment to which deafness leads. Otosclerosis is particularly unfortunate, as a progressive form which, so far, is "incurable," so that a patient while he still hears may feel impending the certain doom of complete deafness. From the economic and social standpoint—and the standpoint of human happiness—deafness travels a progressive route from physical to mental insulation. The enforced physical isolation leads to a pseudo-voluntary mental insulation which deepens at every social contact. Means of preventing it will mean much in economy of national resources, both of money and men. Hence the need of the American Otological Society is of prime interest not only to us who are devoted to medical science, but to everyone concerned with economic or human welfare.

The president of the Society is Dr. J. Gordon Wilson, of Chicago. Dr. Arthur B. Duel, chairman of the Board of Surgeons of the Manhattan Eye, Ear and Throat Hospital, is chairman of the Board of Trustees of the Research Fund, and the other trustees are Gen. Herbert S. Birkett, M.D., Professor of Otology and Laryngology in McGill University, Dr. Eugene A. Crockett, Professor of Otology,

Harvard University Medical School, Dr. Edward B. Dench, Professor of Otology, New York University and Bellevue Medical College, Dr. James F. McKernon, Professor of Otology, New York Post-Graduate Medical College, Dr. Norval H. Pierce, Professor of Laryngology, Rhinology and Otology, University of Illinois College of Medicine, and Dr. Wilson, who is Professor of Otolaryngology in Northwestern University Medical College.

The worthiness of the fund's objective and the high purpose and eminent qualifications of its custodians are unquestionable. It is a need which American philanthropy cannot in good conscience neglect.

THE RINGWORM PROBLEM IN THE UNITED STATES

Dermatologists throughout the country are aware of an enormous increase in the number of cases of fungus infections coming to their attention. Many claim that almost one-fourth of their practice, especially in the summer months, consists of the various types of ringworm, especially that type due to the *Epidermophyton*. Ringworm of the hands and feet, which paraded in the past under such homely names as eczema, chafe, and toe-itch, is now one of the commonest, most important and obstinate conditions in dermatological practice. At the present time clinicians and laboratory workers in our large medical centers are engaged in finding a successful physical, chemical, or biological cure for these minor but distressing conditions.

Attention is also called to the importance of early diagnosis in favus, a serious fungus infection caused by the *Achorion schöenleinii*. This disease causes permanent atrophy and alopecia. It has been very stubborn to treatment in the past, but with X-ray epilation the prognosis is more optimistic. Fortunately, the disease is rare in this part of the country. The ordinary types of ringworm seen in children are always with us and are easily cured by parasitical treatment.

The large increase in the number of cases of ringworm infection is not only due to more accuracy in clinical and laboratory diagnosis, but to the fact that lately the public has taken a greater interest in recreational facilities, bringing them in closer contact in gymnasiums, swimming pools, and recreational centers, all important sources of infection.

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THE BOSTON MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS

Despite the fact that this meeting was held at the extreme eastern border of our country, the distant West was well represented by men of reputation and quality. It has always seemed paradoxical that those who have gained prominence through ardent labors and tireless application, are the ones found at these meetings. Hunger for knowledge drives scientifically trained men to great sacrifices and denial.

The Boston meeting, April 8-12, was well attended by both Fellows of the American College of Physicians and also visiting guests. Clinics were held at the various hospitals in the mornings. Scientific papers were presented at the afternoon and evening sessions. Displays and exhibitions were found at several hospitals to illustrate the investigative activities pertaining to clinical medicine.

The assignment of visiting physicians to hospital clinics was well organized and seemed to prevent overcrowding in particular clinics. The subjects were so distributed that it was possible to avoid omissions or undue repetitions in these clinics. The clinical material was excellently selected and apparently adequate in amount.

For the most part, the hospital clinics were excellently presented, although here and there, in fortunately few instances, the essayists were rather adolescent in clinical experience and therefore didactically fundamental. Nevertheless such situations were usually rescued by a following presentation.

The scientific papers were of high quality and as a rule pedagogically presented. They were, for the most part, too long and occasionally not specifically to the point, therefore tiresome even though rich in useful information. An efficient system of amplification made it possible to hear all the addresses.

Inadequate seating provision for the banquet deprived some of hearing Dr. George E. Vincent's oration on the seasoning influence of age on social and other "prestige," and the "elite" in medicine. After defacing the veneer of medical earnestness and sincerity by singeing eloquence, he concluded with word of praise of the organization which might, in the course of five hundred years or so achieve much "prestige." It was typically a Mencken type of discourse and strangely close to facts, yet characteristically devoid of constructive force.

The convocation ceremony consisted of reading the names of the applicants, which was followed by reading the pledge to maintain the conditions in the constitution and by-laws. Comment on the lack of style and formal civil-

ity in this ceremony was repeatedly heard following the convocation.

The program committee did without doubt most praiseworthy work. The clinics were splendid. The papers were excellent. No one could possibly have attended these meetings without having come away much wiser. The treatment of anemia, for which Boston is already famous, was liberally dealt with. The heart clinics and the thyroid clinics were unusually good.

On the whole, Boston is to be congratulated on the commendable manner of conducting the meeting of the American College of Physicians.

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NEWS NOTES

The next meeting of the Missouri State Board of Health for the examination of applicants for license to practice medicine in Missouri will be held at St. Louis, June 12, 13, 14, 1929.

The Phi Beta Pi National Medical Fraternity will hold a luncheon at noon, Wednesday, May 15, 1929, during the Annual Meeting of the State Association at Springfield. All Phi Beta Pi are urged to come to the State Meeting and attend the luncheon.

Dr. R. B. H. Gradwohl, St. Louis, Lieutenant-Commander Medical Corps United States Naval Reserve, has been ordered to Washington by the Surgeon-General of the Navy to give a course of lectures on the Schilling blood work before the Navy Medical School. His duty there will be from fifteen to thirty days, depending upon the course of study outlined. Dr. Gradwohl left for Washington on April 13.

The United States Civil Service Commission announces open competitive examination for associate medical officer, assistant medical officer, physician, and associate physician. The examinations are to fill vacancies occurring in the Federal classified civil service throughout the United States. Applications will be rated as received by the Commission at Washington, D. C., until June 29, 1929. Full information may be obtained from the Commission at Washington, or from the Civil Service Board of Examiners at the post-office or custom-house in any city.

Dr. Kerwin W. Kinard, Kansas City, was elected president-elect of the American Association for the Study of Goiter at its annual meeting in Dayton, Ohio, March 27, 1929. Dr. Kinard served as secretary of the association for four years.

Dr. Daniel L. Sexton, St. Louis, conducted a dry clinic before the American Association for the Study of Goiter held at Dayton, Ohio, March 25-27, 1929, on the subject of endocrinology. At the same meeting he read a paper on "Hypothyroidism."

Col. George A. Skinner, M.C., Surgeon of the VII. Corps Area, U. S. Army (Minnesota, Iowa, Missouri, Arkansas, North Dakota, South Dakota, Nebraska, Kansas), Headquarters, Fort Omaha, Nebraska, was in St. Louis, April 8-10 on his annual inspection of the R. O. T. C. units of the Medical Departments of the St. Louis and the Washington universities. He also addressed officers of the Medical Reserve Corps of the metropolitan area; was extended the courtesies of the floor at the regular meeting of the St. Louis Medical Society, evening of April 9; and was requested to make the quarters of the Society his headquarters whenever he was in town. Col. Skinner's urbane personality, together with his unusual executive ability have gone far to weld together all the Medical Department activities throughout his extensive Corps command. As well known, for his fine World War work he was granted the Distinguished Service Medal.

The University of Graz, Austria, is forming a comprehensive plan of postgraduate study incorporating the following ideas: (1) All courses to be given in English since the majority of the chiefs and assistants in the various specialties speak fluent English. (2) Stressing clinical and bedside teaching with only a minimum of didactic and theoretical work. (3) Cost of courses to be moderate. (4) A diploma to be granted after a specific length of stay to assure a well rounded grasp of the specialties. The City of Graz offers most excellent opportunities for investigation by American doctors seeking postgraduate instruction. It lies in the foothills of the Alps, the climate being ideal with cool nights in the summer. It is 170 miles south of Vienna, four hours by train, with many fast trains daily. The general hospital of 1600 beds is one of the newest in central Europe, fully and modernly equipped, and divided into separate buildings for each major speciality. Information concerning the courses can be had from Docent Dr. Knaus, Landeskrankenhaus Graz, Austria.

An unusual honor will be conferred upon Dr. John F. Binnie, San Diego, at the annual meeting of the California Medical Association to be held in San Diego, May 8. One session of the Association is titled the "John F. Binnie Meeting," and Dr. William J. Mayo, Rochester, will deliver an oration entitled "Welcome; John F. Binnie, M.D., The Man, The Student, The Surgeon." This honor to be conferred upon Dr. Binnie will be a source of much gratification and pleasure to the large number of Missouri physicians who know and love him, and admired his talents and surgical skill during all the years that he practiced in Kansas City.

Three nurses and a patient were held prisoners in a room of Glenwood Sanatorium in St. Louis County for an hour in the early morning of March 30 while three robbers broke open a safe. The robbers entered the room of Mrs. Anna Clark, head nurse, at 4 a. m. One of them awoke her, told her they were going to break the safe in the office of Superintendent North, and stood guard outside her door while the other two hammered away at the combination of the safe. The noise brought a man patient and two nurses, Leona Walker and Anna Ryan, into the hall. They were forced to enter Mrs. Clark's room. Only \$22 in money and \$75 in jewelry were in the safe, which Superintendent North said is never locked and could have been opened by the robbers with a slight turn of the knob.

The fifth annual meeting and banquet of the Ensworth-Central-Northwestern Medical College Alumni Association will be held in St. Joseph, Thursday, June 6, with a series of clinics preceding the banquet. The clinic committee consists of Drs. F. H. Spencer, W. T. Elam, H. S. Conrad, L. R. Forgrave, J. J. Bansbach and C. A. Good, St. Joseph. It is hoped that every member will make an effort to attend as the entertainment will be original and unique. Any alumnus having the names of graduates of any of the three colleges should send them to the secretary at once in order that they may be invited. The professors in the three colleges are eligible to membership and urged to attend. The dues are \$1.00 per year, including the Medical Herald, which contains all the news of the association. Those interested may address Dr. Chas. Wood Fassett, Secretary, Kansas City.

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The St. Louis Clinics gave an intensive post-graduate course in medicine and neurology with a closely scheduled round of clinics from 9 a. m. to 5 p. m. every week day, from April 22 to May 4. The organization has soundly established itself and the registration for its courses has steadily grown. The tentative schedule for this course included clinics conducted by Drs. Augustus P. Munsch, James F. McFadden, O. P. J. Falk, H. W. Soper, August A. Werner, Elsworth Smith, H. I. Spector, F. D. Gorham, Sinclair Luton, Charles H. Neilson, G. V. Stryker, George Ives, Alphonse McMahon, Joseph C. Peden, J. Curtis Lyter and Charles H. Eyermann.

The Kansas City Southwest Clinical Society has practically completed its plans for the Seventh Annual Fall Clinical Conference to be held in Kansas City, Missouri, October 7-11, at the President Hotel.

The meeting this year is to be featured by the presence of a number of very distinguished guests, among them being Dr. Chevalier Jackson, Philadelphia; Dr. George W. Crile, Cleveland; Dr. Thomas McCrae, Philadelphia; Dr. Bela Schick, New York; Dr. William Allen Pusey, Chicago; Dr. Robert Osgood, Boston; Dr. J. C. Litzenberg, University of Minnesota; Dr. Vilray P. Blair, St. Louis.

The usual hospital operative and diagnostic clinics will be held each morning. An innovation will be a complete postgraduate course consisting of twenty classes each morning at the President Hotel where every one will find something interesting no matter what might be his specialty.

The meeting as planned is very intensive in its character, but it is not to be devoid of its social side; there will be the usual alumni dinners, smoker, golf, and elaborate entertainments for the ladies.

The regular monthly clinics which this society is holding at the various hospitals in conjunction with the Jackson County and Wyandotte County Medical Societies are noteworthy and deserve a large attendance. Each month a diagnostic and operative clinic is held by some distinguished guest at a hospital and in the evening he addresses the County Society. By this means interest in the County Society has been stimulated and the attendance greatly increased.

The Chicago Medical Society will hold a two weeks' clinic at Cook County Hospital, June 17-29 inclusive. Members of the hospital staff will give medical and surgical clinics in amphitheaters and ward walks. The amphitheater work will be devoted to medical and surgical dry clinics and lectures. Two amphitheaters will be used simultaneously, one for

medical and the other for surgical clinics. Each clinic will be for one hour, thus giving four medical and four surgical clinics daily. Operative work will be done during the hours devoted to ward walks. Six meetings to be addressed by speakers other than members of the hospital staff will be held on heart disease, tuberculosis, obstetrics, physiotherapy, gastrointestinal disorders, and possibly diabetes. A registration fee of ten dollars will be charged. For further information address the Summer Clinics Committee, Chicago Medical Society, 185 N. Wabash Avenue, Chicago.

The next meeting of the American Pharmaceutical Manufacturers' Association will be held at Old Point Comfort, Virginia, June 3-6. The meeting will take on an international aspect as invitations have been extended to more than twenty-five leading Canadian manufacturers to attend and participate. Representatives of the British Chemical Manufacturers have also been invited. Discussion of distribution problems will be one of the principal features of the meeting. This discussion will be led by Mr. Frank A. Mallett, of the Standard Chemical Company, of Des Moines, Iowa. Closely allied to distribution is the work of the publicity committee. Their report will include the results of a survey of the medical profession which has recently been started to improve the service of the association to the profession. There will be exhibits of medical advertising by some of the members and many practical advertising and publicity problems will be discussed.

The following articles have been accepted for New and Nonofficial Remedies:

Haley M-O Co.

Magnesia-Mineral Oil (25) Haley
H. K. Mulford Co.

Perfringens Antitoxin—Mulford
National Drug Co.

Diphtheria Toxin-Antitoxin Mixture
Parke, Davis & Co.

Tetanus-Perfringens Antitoxin, Refined and
Concentrated

G. D. Searle & Co.

Solution Bismuth Sodium Tartrate—Searle,
1.5 per cent

Sulpharsphenamine—Searle

Sulpharsphenamine—Searle, 0.4 Gm. Am-
pules

Sulpharsphenamine—Searle, 0.5 Gm. Am-
pules

Sulpharsphenamine—Searle, 0.6 Gm. Am-
pules

Among the other special trains going to Portland, Oregon, for the 80th Annual Meeting of

the American Medical Association, July 8-12, is the Golfers' Special, which is routed over the Chicago and North Western, Union Pacific, and Southern Pacific railroads. It leaves Chicago Saturday June 29, at 10:00 p. m., and arrives Portland, Sunday July 7, at 7:30 a. m., stopping enroute for golf at Omaha, Denver, Salt Lake City, Lake Tahoe, Del Monte, San Francisco, and Medford, Oregon.

On the return trip members will be routed over the Great Northern, leaving Portland Friday, July 12, at 4:30 p. m. and arriving Chicago Saturday, July 20, at 8:35 a. m. Stops will be made at Vancouver, B. C., Everett, Spokane, Glacier National Park, Fargo, and Minneapolis. Members interested may write Dr. John P. DeWitt, 112 Shorb Ave., Northwest, Canton, Ohio.

OBITUARY

WILSON JONES FERGUSON, M.D.

Dr. Wilson J. Ferguson, Sedalia, a graduate of Kansas City Medical College (now School of Medicine of the University of Kansas), 1887, died at his home March 18, 1929, of complications setting in after he seemed to



WILSON JONES FERGUSON, M.D.

SEDALIA

1866-1929

have considerably recuperated from a stroke of apoplexy which he suffered in April, 1928.

Although he was unable to practice medicine after being stricken, he kept his office open in the hope that ultimately he would be able to return to the work he loved so well. For weeks

he was confined to his home. In time his condition permitted him to take daily automobile rides, and he became more cheerful and hopeful of returning to his practice each day as his health seemed gradually to return. A week before his death he went on a long drive with Mrs. Ferguson, but became suddenly ill the following day. He lost consciousness within four days, and the end came two days later. He had not been well for months prior to the paralytic stroke and his friends knew that he had not been his old self since the death of his father a few years ago, a change which had been still more noticeable since his brother, Arthur Ferguson, died in Columbia two years ago.

Dr. Ferguson was born in Maud, Kentucky, February 4, 1866, the son of Dr. J. M. and Annie E. Ferguson. In 1874 the family removed to Hughesville, Missouri, residing for a year with the mother's parents, Mr. and Mrs. Wilson H. Jones, while the future physician began his scholastic work at High Point School. The following year his parents removed to another farm and he attended a country school south of Hughesville. Later he attended Central College and Morrisville College, and eventually the medical school in Kansas City, from which he graduated. He followed up his professional education with a postgraduate course at the New York Polyclinic Hospital and was resident surgeon there for three years. Returning to Missouri he established his practice in Sedalia but in 1894 went east for another postgraduate course. He took further postgraduate work four years later and spent 1904 in the great European clinics.

When the United States entered the World War, Dr. Ferguson was made president of the Pettis County Medical Committee of the National Council of Defense. He served as an examiner for the government from July, 1917, to August, 1918, when he was commissioned a captain in the Medical Corps. He was sent first to Fort Oglethorpe in Georgia, and later was transferred to an eastern camp and promoted to the rank of major. He was Chief Division Surgeon of the Missouri Pacific Railroad at Sedalia. He had been an Exalted Ruler of the Sedalia Lodge of Elks and had been active in the work which brought about the erection of their recently completed new home; he was a Mason and a Knight Templar in Sedalia lodges; and a Shriner of Ararat Temple, Kansas City. He was a member of the Methodist Church from childhood.

Busy as was his practice it did not keep him from having a leading part in the affairs of Pettis County Medical Society, Missouri State Medical Association, and in the civic affairs of his city. Rarely did he fail to attend the Annual Meetings of the State Medical Associa-

tion where he was recognized as one of the leading factors in the work of the organization. He served as president of the Pettis County Medical Society and was Councilor of the 17th District of the State Association for several years and a delegate to the American Medical Association for many years. In 1920 he was elected president of the State Medical Association, an honor that it was generally recognized he had earned by his faithful and continuous service in the organization. In 1917 Governor Gardner appointed him a member of the state board of health for a term of four years and in the same year he was elected president of the Board. He was a Fellow of the American College of Surgeons.

He was a director of the Sedalia Trust Company and a stockholder of the Citizens National Bank. He was one of the largest financial contributors and a most active and effective supporter of St. Mary's Hospital in its reorganization. He was actively interested in politics, a lover of boyhood and was a member of the Boy Scout Council. He was associated, in fact, with virtually every civic movement of his community.

Dr. Ferguson and Miss Willie Burke were married on October 13, 1912, and she and a son, Wilson, and a brother, W. D. Ferguson, Holden, Missouri, survive him. Mr. and Mrs. W. D. Ferguson and Mrs. Arthur Ferguson were at his bedside. His death, deeply as it was felt at Sedalia, where his services for so many years had seemed indispensable to the community, will be felt with no less regret by those who have been associated with him in his fine work in the state and national associations.

JAMES MOORES BALL, M.D.

Dr. James Moores Ball, St. Louis, a graduate of the State University of Iowa College of Medicine, Iowa City, 1884, died at his home March 1, 1929, of heart disease, after an illness of ten days, aged 66.

Dr. Ball who was a prominent ophthalmologist of St. Louis was born at West Union, Iowa, in 1862. After graduating from medical school he pursued postgraduate study in this country and abroad. He occupied the chair of ophthalmology in the old St. Louis College of Physicians and Surgeons and held appointments on the staffs of various hospitals during his lifetime. Many prominent oculists and physicians of today attended his lectures. In recent years he again came into prominence as a lecturer on medico-historical subjects, appearing before postgraduate classes in many cities. He attained a unique position in this field due to his untiring and productive efforts in research. At various times he had served

on the editorial staffs of scientific and medical publications.

As an author, he was internationally known for his contributions to ophthalmology and medical history; and his "Modern Ophthalmology" is a standard and authoritative work on diseases of the eye. Another work, "Andreas Vesalius, Reformer of Anatomy," published in 1910 for private distribution, is an intimate picture of the man who, born in Brussels in 1510, first placed the science of anatomy on a definite basis. The year 1928 saw the publication of "Sack-em-up Men," a gruesome account of murder and grave robbing to obtain material for anatomical study by surgeons, and for the universities of England, Scotland and Ireland. Several unfinished works by Dr. Ball remain, among which is a treatise on "Art and Anatomists" which lacks only two chapters of being complete. Up to a few days before his death the hand of Dr. Ball continued to correct and edit the proofs of this, his last work.

While his professional obligations occupied most of his time his chief diversions were his library and his friends, and he always displayed a reverence for both. During his career he gathered one of the most comprehensive collections of ophthalmological material in existence which he gave to the Army Medical Museum at Washington, where it is now housed in the James Moores Ball Room. This room is filled to overflowing with pathological specimens, plates, engravings, charts and paintings of eye diseases, along with books, letters and autographs from many celebrated physicians and surgeons from all over the world. A portrait in bronze, of the donor, by Victor Holm, occupies a place in the midst of this collection.

Recently the Doctor's rare and valuable collection of several hundred old medical volumes which were gathered over a course of years was donated by him to the St. Louis Medical Society. These books are now permanently housed in the Society's library and contain first editions dating as far back as 1400.

His was a character dignified and unique in its friendships and loyal in its affection. Those who knew him intimately can but look back and recall the unassuming worth of the man, the modesty of his speech and his kindly deference to the ideas of others. Always a teacher he gave freely whatever was contained in the vast storehouse of knowledge he possessed to those who were willing to absorb from his years of experience. New fads did not appeal to his sense of proportion, but he was always alert to seek and promote the better ideas which possessed definite merit.

Dr. Ball was a member of the St. Louis Medical Society, the Ophthalmic Section of the St. Louis Medical Society, and the American

Academy of Ophthalmology and Oto-Laryngology and a Fellow of the American Medical Association. He was elected to membership in the Ophthalmological Society of the United Kingdom about ten years ago. He belonged to the Masonic Order, Knights Templar, and the Shriners. For many years he was a member of the Mercantile Club and the St. Louis Club.

Services were held from the building of the St. Louis Medical Society followed by cremation at Valhalla Cemetery.

His widow and their son and daughter survive him.

FREDERICK O. SCHWARTZ, M.D.

CHARLES HENRY LESTER, M.D.

Dr. Charles H. Lester, Olathe, Kansas, a graduate of the Kansas City Medical College, 1879, died at his home, February 3, 1929, aged 72.

In the passing of Dr. Lester, another link between pioneer and modern medicine in Kansas City, Missouri, has been broken. His father, Dr. Thomas B. Lester, came to Kansas City in 1854, became one of the leading physicians of the day and maintained a prominent position as practitioner and teacher until his death in the middle eighties. The old Lester home at the southwest corner of Sixth and Walnut streets was for years a center for social activities, and here "Dr. Charlie" passed his boyhood and early manhood until the southward growth of the business section compelled the abandonment of a home that had been one of the handsomest and most attractive of that day.

After graduating from medical school Dr. Lester served as intern in Bellevue Hospital, then returned to Kansas City and took up general practice. He became demonstrator of anatomy and later professor of anatomy in the Kansas City Medical College which was merged into the School of Medicine of Kansas University in 1905. He was president of the Jackson County Medical Society in 1890-91 and served two terms as coroner of Jackson County.

In his prime Dr. Lester was one of the busiest and most popular physicians in this city. In general practice, but with a distinct leaning toward pediatrics, he early established a large clientele, especially among the children. He was a prince of mixers among the little folks, the little maids were his "sweethearts" and the small boys were his "pals," who brightened up when he entered the sick room with his beaming smiles and cheery words of kindly interest and true affection. To these youngsters and also to their elders, "Dr. Charlie" was the embodiment of hope and cheerful expectancy and thus was reflected a psychologic adjuvant to the drugs of whose use he was well informed.

All too frequently, a great popularity among the laity is coincident with a lack of it among one's professional brethren, but this was not so of Dr. Lester. He was a friend to all in or out of the profession, and enjoyed the esteem and affection of his associates.

The younger generation of physicians knew comparatively little of Dr. Lester because of his lessened activities consequent upon arterial changes which became manifest about fifteen years ago, and by reason of which he was obliged to curtail his work as a general practitioner. About eleven years ago he established a country home near Olathe, Kansas, maintaining his office in the city but throwing him less in contact with the other members of his profession. The old guard will revere the memory of Dr. Charlie Lester, the friend of all that knew him.

R. T. SLOAN, M.D.

From the *Bulletin of the Jackson County Medical Society*.

HARVEY G. MAY, M.D.

Dr. Harvey G. May, Harrisonville, a graduate of Marion-Sims Medical College (now St. Louis University School of Medicine), St. Louis, 1896, died suddenly in the office of Dr. E. H. Skinner, Kansas City, Friday afternoon, January 18, 1929, of angina pectoris, aged 64. He had gone to Kansas City for a physical examination following a heart attack ten days previously and went to Dr. Skinner's office for an X-ray of the teeth.

Dr. May was born April 1, 1864, at Henton Mill, Fleming County, Kentucky, and moved with his family to Harrisonville in 1865 when he was but four years of age. He received his early education in the local schools and the Missouri University. He later entered the drug business, owning and operating a drug store for many years. Due to his association with physicians, he finally yielded to the urge to minister to suffering humanity, so he began the study of medicine in St. Louis. After receiving his degree he immediately opened an office in Harrisonville which he maintained until the time of his death.

Dr. May was well known and loved in Cass County. They knew his peculiar mannerisms, his gift of mimicry, and they enjoyed his good-natured wit and cynicisms, but they knew him best as a physician—a country doctor—who for thirty-two years had ministered to humanity. For twenty years he was county health officer and had charge of the County Home and all the poor and needy. During the World War he was government medical examiner for Cass County.

Dr. May was a member of the Cass County

Medical Society. He was unmarried. One sister and one brother survive.

DAVID S. LONG, M.D.

EUGENE P. TAYLOR, M.D.

Dr. Eugene P. Taylor, Fairfax, a graduate of Louisville Medical College, 1888, died at his home December 28, 1928, aged 72.

Dr. Taylor was a lifelong resident of Atchison County. He was educated in the high school of Rockport, Missouri, and the Nebraska State Normal. After receiving his medical diploma he began practice at Fairfax in 1891. At the time of his death he was president of the Atchison County Medical Society. In 1925, 1926, 1927, he was elected to represent his Society at the Annual Meetings of the State Association. He was a Fellow of the American Medical Association. At one time he was mayor of Fairfax and for many years local surgeon for the Chicago, Burlington and Quincy Railroad. He was a large land owner in Atchison County.

JAMES EDWARD GARTSIDE, M.D.

Dr. James E. Gartside, Kingston, a graduate of Physio-Medical College of Indiana, Indianapolis, 1883, died at Trinity Lutheran Hospital, Kansas City, March 2, 1929, of Parkinson's disease.

Dr. Gartside located at Kingston soon after his graduation. He was a member of the Caldwell County Medical Society, of which he was president in 1922 and censor in 1924, 1925 and 1926. He was county health officer for over thirty years and also served as county recorder for eight years. He was a loved physician and a respected citizen and the large attendance at the interment at Kingston, showed the high esteem in which he was held. Surviving him are his widow, Mrs. Ella F. Gartside, one son, Harold M., Kansas City, and one daughter, Mrs. Tinsley Brown, Jr., Richmond, and seven grandchildren.

The Caldwell County Medical Society adopted the following resolutions on the death of Dr. Gartside:

WHEREAS, It has pleased our Lord to take from our midst Dr. James Edward Gartside, Kingston, a faithful member of Caldwell County Medical Society, therefore be it

Resolved, That we, as members of said Society, extend to his wife and family our heartfelt sympathy, and be it further

Resolved, That in his death a loving husband and father has gone to his reward and our Society has lost a faithful member and the community a loved physician and honored citizen one who had given the best of his life to the relief of the ills of mankind. Nurtured in the old school of tradition, he graced and dignified the common place by his presence; and be it further

Resolved, That a copy of these resolutions be sent to the family of the deceased, be spread on the minutes for a permanent record, and sent to THE JOURNAL of the Missouri State Medical Association for publication.

C. H. WILBUR,
E. A. B. THOMPSON,
TINSLEY BROWN,
Committee.

DEVILLO J. NICHOLS, M.D.

Dr. Devillo J. Nichols, Pottersville, a graduate of University of Michigan Medical School, Ann Arbor, 1871, died January 11, 1929, at the Christa Hogan Hospital, West Plains, of influenza and mastoiditis, aged 81.

Dr. Nichols was an Honor Member of the Howell-Oregon County Medical Society, having retired from practice in 1914. Previous to locating at Pottersville, Dr. Nichols practiced at Three Rivers, Michigan, and West Plains, Missouri. Dr. Nichols was at one time pension examiner and local surgeon for the Frisco Railroad.

JOHN P. SEBASTIAN, M.D.

Dr. John P. Sebastian, Caledonia, a graduate of Washington University School of Medicine, 1871, died at the Arcadia Valley Hospital, Ironton, February 22, 1929 of uremia, aged 80.

Dr. Sebastian was a past president of the Wayne County Medical Society. He formerly practiced at Williamsville, Missouri.

CORRESPONDENCE

COL. GILCHRIST PROMOTED TO MAJOR GENERAL

To the Editor:

It will be remembered by you, and by doubtless other members of the State Association, that following the World War there existed an extremely emotional and largely chaotic state of mind regarding the actual damage wrought by, and the terminal results of, toxic gases.

You will also recall that Lieut. Col. Harry S. Gilchrist, M.C., detailed with the Chief of the Chemical Warfare Service, an officer of most extensive experience, was sent throughout the country to present before the medical societies of the large cities analyses and conclusions based upon the entire gas casualty list of the United States and its late allies.

It will be remembered that two consecutive evenings of the St. Louis Medical Society were completely devoted to the consideration of his epoch-making message. Since that time Lieut. Col. Gilchrist has attained his full Colonelcy; and but recently, on the retirement of Maj. Gen. Fries, has been promoted to Chief of the Chemical Warfare Service with the rank of Major General. It is believed that this well deserved honor will be appreciated by every thoughtful minded officer of the Medical Reserve Corps and should be a matter of approbation to the medical profession throughout the country.

NORVELLE WALLACE SHARPE, M.D.
Lieut. Col. M. R. C.

When purchasing tickets to Springfield ask the ticket agent for a receipt or certificate. Deposit with the secretary at Springfield to obtain one-half fare on return trip.

MISCELLANY

REPORT AND ACCOUNTS

OF THE

MISSOURI STATE MEDICAL ASSOCIATION

DECEMBER 31, 1928

KESSLER, CARTALL & Co.

CERTIFIED PUBLIC ACCOUNTANTS

LA SALLE BUILDING

St. Louis, Mo.

March 21, 1929.

Missouri State Medical Association,
St. Louis, Missouri.

Gentlemen:—

Pursuant to your request we have examined the accounts of the Missouri State Medical Association for the year ended December 31, 1928 and now submit our report thereon together with the following statements:

Exhibit "A" Balance Sheet as at December 31, 1928.

Exhibit "B" Statement of Income and Expenses—

For the year 1928.

Exhibit "C" Cash Receipts and Disbursements—For the year 1928—

1. General Fund
2. Legislative Fund
3. Sinking Fund
4. Defense Fund

Exhibit "D" Dues Receivable and Membership—by Counties—December 31, 1928.

SCOPE OF EXAMINATION

Our examination embraced the verification of the assets and liabilities of the Association as at December 31, 1928, and a comprehensive review of the transactions relating to income and expenses. Tests were made in verification of cash received and disbursed, expenses and other matters of detail. The recorded cash receipts were traced in total into the bank accounts and the expenditures were substantiated with approved vouchers. Remittance advices from the several local Secretaries were compared with the entries in the Association's records.

Comments explanatory of the attached statements and accounts follow:

INCOME AND EXPENSES

Full details of the accounts and items pertaining to the income and expenses of the Association are set forth in Exhibit "B" appended to this report.

The following table sets forth in condensed form a comparison of the income and expenditures for the current and preceding years:

Particulars	Year 1928	Year 1927	Increase— Decrease—
Income:—			
Dues received.....	\$22,796.00	\$23,373.00	\$—577.00
Journal—Advertising and subscriptions	9,607.87	9,105.87	+502.00
Exhibition space	515.00	745.00	—230.00
Interest	692.23	81.06	+611.17
Bad debts recovered.....	275.00	104.95	+170.05
Total Income	\$33,886.10	\$33,409.88	\$+ 476.22
Expenses	32,806.67	30,164.83	+2,641.84
Excess of Income over Expenditures	\$ 1,079.43	\$ 3,245.05	—\$2,165.62

BALANCE SHEET

On the constituent items in the Balance Sheet as at December 31, 1928 (Exhibit "A") the following comments are submitted:

CASH:—(\$14,907.38)

Cash in bank was verified with certificates received

from the depositaries and that on hand by actual count. A summary of the cash account follows:

General Fund—Traders Bank, Salisbury, Mo.	\$9,101.47
General Fund—Secretary's expense fund, St. Louis, Mo.	342.63
General Fund—Petty cash, St. Louis.....	10.00
Total General Fund	\$ 9,454.10
Legislative Fund—Traders Bank, Salis- bury, Mo.	\$2,632.99
Sinking Fund—Traders Bank, Salisbury, Mo.	706.02
Defense Fund—Traders Bank, Salisbury, Mo.	2,114.27
Total Other Funds.....	5,453.28
Total Cash	\$14,907.38

Full details of the cash received and disbursed through the above named funds are set forth in Exhibit "C" appended to this report. Interest credited by the bank has been included in the current year's income.

ACCOUNTS RECEIVABLE—ADVERTISING:—(\$797.59)

We did not verify the amounts due from various advertisers in the Association's Journal by direct communication with the individual debtors, but we carefully scrutinized and analyzed the several accounts as to age and condition as at December 31, 1928. We discussed the collectibility of the outstanding balances with the proper authorities and based on information received we are of the opinion that the accounts receivable as shown in the Balance Sheet should be fully liquidated in due course.

As heretofore, the values of the items furnished by reciprocal advertisers in exchange for advertising space has not been included in the income account.

DUES RECEIVABLE:—(\$4,379.00)

The details of dues receivable are set forth in Exhibit "D" attached to this report. In verification of these we listed the balances as disclosed by the members' accounts, which are summarized as follows:

Dues—1925	\$ 5.00
Dues—1926	536.00
Dues—1927	1,304.00
Dues—1928	2,992.00
Total	\$4,837.00
Less—Prepaid dues	\$420.00
Less—Other credits	38.00
Net Outstandings	\$4,379.00

As compared with the preceding year the outstandings show an increase of \$1,117.00. The membership of the Association on December 31, 1928, as reflected by the records, was as follows:

District	Members			
	Honor	Senior	Junior	Total
BUCHANAN COUNTY—				
Total December 31, 1927.....	1	124	..	125
Additions .....	..	6	3	9
Totals	1	130	3	134
Deductions .....	..	9	..	9
Total December 31, 1928.....	1	121	3	125
GREENE COUNTY—				
Total December 31, 1927.....	2	98	..	100
Additions .....	..	2	..	2
Totals	2	100	..	102
Deductions .....	..	..	..	..
Total December 31, 1928.....	2	100	..	102
JACKSON COUNTY—				
Total December 31, 1927.....	36	494	1	531
Additions .....	..	17	9	26
Totals	36	511	10	557
Deductions	3	21	..	24
Total December 31, 1928.....	33	490	10	533

Meetings	3,329.57
Office rent and light	1,439.00
Office salaries	3,960.00
Officers' salaries	5,900.00
Postage	737.95
Telephone and telegraph	1,042.37
Traveling expenses	792.17
Printing and stationery	429.09
Insurance	9.90
Badges	97.69
Post-Graduate meeting	289.91
Legal expense	1,012.83
Furniture and fixtures	77.20
Annual meeting	476.23
Cash discounts—Advertisers	392.92

Total Disbursements	33,370.50
Balance December 31, 1928.....	\$ 9,454.10

Consists of:—	
Traders Bank, Salisbury, Mo. \$9,282.66	
Less outstanding checks 12-31-28 181.19	
	\$9,101.47
Secretary's expense fund.....\$ 342.63	
Petty cash	10.00 352.63
Total as above	\$9,454.10

EXHIBIT "C"—2

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS FOR THE
YEAR 1928

LEGISLATIVE FUND	
Balance January 1, 1928.....	\$3,038.03
Transferred from General Fund.....	3,171.00
Interest on bank balance, etc.....	128.29
Total cash to be accounted for.....	\$6,337.32
Disbursements:—	
Information and legal expenses.....	3,704.33
Cash in bank December 31, 1928.....	\$2,632.99

SINKING FUND	
Balance January 1, 1928	\$ 676.02
Interest on bank balance	30.00
Cash in bank December 31, 1928.....	\$ 706.02

DEFENSE FUND	
Balance January 1, 1928.....	\$1,243.89
Received from General Fund.....	1,000.00
Interest on bank balances.....	70.38
Total cash to be accounted for.....	\$2,314.27
Disbursements:—	
Defense in malpractice suits.....	200.00
Cash in bank December 31, 1928.....	\$2,114.27

EXHIBIT "D"

DUES RECEIVABLE AND MEMBERSHIP BY COUNTIES—DECEMBER,
31, 1928

		DUES RECEIVABLE				Total	
County	Year 1925	Year 1926	Year 1927	Year 1928	Receiv- able	No. of Mem- bers	
Adair	\$	\$	\$ 8.00	\$ 16.00	\$ 24.00	11	
Atchison						14	
Audrain						19	
Barry		8.00	16.00	16.00	40.00	9	
Barton			32.00	40.00	72.00	10	
Bates						16	
Benton						8	
Boone						38	
Buchanan			24.00	112.00	136.00	125	
Butler		8.00	16.00	32.00	56.00	15	
Caldwell						14	
Callaway				8.00	8.00	15	
Camden						3	
Cape Girardeau	16.00	16.00		56.00	88.00	33	
Carroll				24.00	24.00	14	
Carter-Shannon			8.00	24.00	32.00	7	
Cass	8.00	24.00	72.00	104.00	24	24	
Chariton			8.00		8.00	10	
Christian			8.00		8.00	7	
Clark		16.00	32.00	48.00	33	33	
Clay		8.00	24.00	40.00	72.00	11	
Cole	16.00	16.00	32.00	64.00	29	29	
Cooper			8.00	16.00	24.00	20	
Crawford				16.00	16.00	10	

County	Year 1925	Year 1926	Year 1927	Year 1928	Total Dues Receiv- able	No. of Mem- bers
Dade						4
Dallas		24.00	32.00	32.00	88.00	12
Dayiess		8.00	8.00	16.00	32.00	14
Dekalb		8.00	16.00	16.00	40.00	7
Dent						3
Dunklin		8.00	40.00	56.00	104.00	17
Franklin			8.00	16.00	24.00	22
Gasconade-Maries						
Osage		8.00	16.00	40.00	64.00	9
Gentry		16.00	32.00	40.00	88.00	12
Greene		32.00	96.00	272.00	400.00	102
Grundy		16.00	16.00	16.00	48.00	16
Harrison		8.00	24.00	24.00	56.00	10
Henry				8.00	8.00	24
Holt				24.00	24.00	13
Howard			16.00	24.00	40.00	12
Howell-Oregon..				16.00	16.00	23
Iron						1
Jackson				96.00	96.00	533
Jasper		8.00	16.00	56.00	80.00	63
Jefferson			8.00	16.00	24.00	15
Johnson				8.00	8.00	18
Knox				16.00	16.00	6
Laclede				8.00	8.00	13
Lafayette				16.00	16.00	32
Lawrence-Stone..		32.00	56.00	80.00	168.00	23
Lewis			24.00	24.00	48.00	7
Linn			16.00	32.00	48.00	21
Livingston		32.00	48.00	80.00	160.00	15
Macon		24.00	24.00	24.00	72.00	10
Madison						5
Marion		8.00	8.00	24.00	40.00	31
Mercer				8.00	8.00	8
Miller						8
Mississippi			8.00	8.00	16.00	7
Moniteau		8.00	8.00	24.00	40.00	8
Monroe				8.00	8.00	7
Montgomery				32.00	32.00	5
Morgan						2
New Madrid		32.00	48.00	88.00	168.00	11
Newton			8.00	16.00	24.00	14
Nodaway			8.00	24.00	32.00	30
Pemiscot		16.00	32.00	48.00	96.00	20
Perry		8.00	24.00	32.00	64.00	7
Pettis			8.00	48.00	56.00	42
Phelps		24.00	32.00	48.00	104.00	15
Pike		16.00	24.00	24.00	64.00	23
Platte						15
Polk	5.00	24.00	24.00	40.00	93.00	5
Pulaski		8.00	16.00	16.00	40.00	9
Putnam		24.00	32.00	48.00	104.00	8
Ralls						3
Randolph			8.00	24.00	32.00	28
Ray		8.00	16.00	24.00	48.00	15
Reynolds			16.00	16.00	32.00	5
St. Charles				8.00	8.00	21
St. Clair			8.00	16.00	24.00	2
St. Francis						29
St. Genevieve						6
St. Louis				24.00	24.00	62
Saline				16.00	16.00	32
Schuyler						5
Scotland						4
Scott		8.00	16.00	24.00	48.00	20
Shelby						12
Stoddard				8.00	8.00	15
Sullivan				8.00	8.00	10
Taney		8.00	16.00	24.00	48.00	5
Texas			32.00	48.00	80.00	13
Vernon-Cedar				32.00	32.00	32
Wayne		24.00	40.00	48.00	112.00	8
Webster						12
Wright-Douglas..						9
St. Louis City..		32.00	160.00	528.00	720.00	1100

Totals \$5.00 \$536.00 \$1,304.00 \$2,992.00 \$4,837.00 3286

Less prepaid dues and unapplied credits:—

Prepaid dues—	
Clay	\$ 8.00
Crawford	8.00
Lafayette	4.00
Madison	40.00
Nodaway	16.00
Perry	8.00
Ralls	24.00
St. Francois	100.00
St. Louis	16.00
Sullivan	4.00
Buchanan	28.00
St. Louis City	164.00

Total prepaid dues..... \$420.00

Unapplied credits—

Pemiscot	\$ 3.00
Grundy	3.00
Dunklin	3.00
Stoddard	4.00
St. Charles	3.00
Pettis	8.00
Barry	3.00
Wayne	3.00

Newton 8.00

Total unapplied credits 38.00

Total prepaid dues and unapplied credits 458.00

Net dues receivable, per Balance Sheet \$4,379.00

MISSOURI STATE MEDICAL ASSOCIATION

72d Annual Meeting

The 72d Annual Meeting of the Association convenes at Springfield, Monday, Tuesday, Wednesday and Thursday, May 13, 14, 15 and 16. The House of Delegates will convene Monday, May 13, and hold its first session when a large part of the business of the Association will be transacted without interfering with the scientific proceedings on the following days. The House of Delegates will hold its meetings on the roof garden of the Kentwood Arms Hotel. All scientific sessions will also be held on the roof garden of the hotel. On account of the large number of papers accepted for presentation at this session a scientific program has been arranged for Tuesday night. As usual Wednesday night has been set aside for the addresses of the President, the President-Elect and our guests. These sessions will be held on the roof garden of the Kentwood Arms Hotel. The registration desk and the exhibits will be located in the dining room of the Kentwood Arms Hotel on the lobby floor.

HOUSE OF DELEGATES

First Meeting—Monday, May 13, 1929—9:30 A. M. Kentwood Arms Hotel

Roll Call.

Reading of Minutes of Previous Meeting.

Reading of President's Message and Recommendations.

Report of Committee on Arrangements.

Report of Secretary.

Report of Treasurer.

Report of Committee on Scientific Work.

Report of Committee on Public Policy.

Report of Committee on Publication.

Report of Committee on Medical Defense.

Report of Committee on Medical Education and Hospitals.

Report of Committee on Medical Economics.

Report of Committee on Postgraduate Course.

Report of Committee on Constitution and By-Laws.

Appointment of Committee on Nominations.

Recess till 3:00 P. M.

Report of the Council.

Report of Reference Committees.

Reading of Resolutions, Memorials, etc.

Selection of Place of Next Meeting.

Miscellaneous Business.

Second Meeting—Wednesday, May 15, 1929—3:30 P. M.

Kentwood Arms Hotel

Reading of Minutes.

Report of Nominating Committee.

Election of Officers.

Election of President-Elect.

Unfinished Business.

The Council

First meeting Monday, May 13, on the roof garden of the Kentwood Arms Hotel, immediately after adjournment of the morning session of the House of Delegates.

Second meeting Wednesday, May 15, immediately following adjournment of House of Delegates.

GENERAL MEETING

Tuesday, May 14, 1929—8:30 A. M. Kentwood Arms Hotel

Symposium on Neurology:

Sequellae of Acute Infections.....E. T. Gibson, M.D., Kansas City

- Sequellae of Encephalitis.....G. Wilse Robinson, M.D., Kansas City
Modern Methods of Treatment in Neurosyphilis.....
.....A. D. Carr, M.D., St. Louis
Differential Diagnosis of Common Mental Diseases.....
.....Val B. Satterfield, M.D., St. Louis
Our Present Knowledge of the Psychoneuroses, With Especial Refer-
ence to So-Called Neurasthenia....Peter Bassoe, M.D., Chicago, Ill.
Feigned Eruptions.....Joseph Grindon, M.D., St. Louis
Diagnosis of Allergy.....Chas. H. Eyermann, M.D., St. Louis
Malta Fever.....F. C. Helwig, M.D., Kansas City
Some Medico-Social Aspects: With Particular Reference to the De-
pendent Case.....Charles W. Thierry, Jr., M.D., St. Louis

GENERAL MEETING

Tuesday, May 14, 1929—1:30 P. M. Kentwood Arms Hotel

- Symposium on Obstetrics:
Control of Pain in Childbirth by the Morphin-Scopolamin Method
.....Otto Krebs, M.D., St. Louis
Control of Pain in Childbirth by the Gwathmey Method.....
.....E. C. White, M.D., Kansas City
Control of Pain in Childbirth by Other Methods.....
.....J. Milton Singleton, M.D., Kansas City
Postpartum and Postnatal Care....Joseph D. James, M.D., Springfield
Management of Difficult Head Presentation.....
.....W. L. Clapper, M.D., St. Louis
The Uterine Curettage as a Diagnostic Procedure.....
.....Dudley A. Robnett, M.D., Columbia
Uterine Retrodisplacement and Its Incident Pathology; Illustrated
With Lantern Slides.....R. U. Stevens, M.D., Kansas City
Further Observations on Non-Calculus Obstructions of the Ureter
.....Neil S. Moore, M.D., St. Louis
Diagnosis of Abdominal Tumors With the X-Ray After the Adminis-
tration of Opaque Media; Illustrated With Lantern Slides.....
.....L. G. McCutchen, M.D., St. Louis

GENERAL MEETING

Tuesday, May 14, 1929—7:30 P. M. Kentwood Arms Hotel

- Treatment of Chronic Heart Disease.....Sinclair Luton, M.D., St. Louis
Influence of Etiology on the Prognosis of Heart Disease.....
.....O. P. J. Falk, M.D., St. Louis
Aneurysm of the Aorta; Verification of Diagnosis.....
.....E. J. Schisler, M.D., St. Louis
Fatal Hemorrhage From Mitral Stenosis; Report of Two Cases....
.....A. Morris Ginsberg, M.D., Kansas City
Meningitis.....A. Sophian, M.D., Kansas City
The Schilling Differential Blood Count With Reference to Diagnosis
and Prognosis.....R. B. H. Gradwohl, M.D., St. Louis

GENERAL MEETING

Wednesday, May 15, 1929—8:30 A. M. Kentwood Arms Hotel

- Symposium on Chest Diseases:
Nontuberculous Conditions Which Simulate Tuberculosis.....
.....W. J. Bryan, M.D., Mt. Vernon
The Surgery of Pulmonary Tuberculosis.....
.....Evarts A. Graham, M.D., St. Louis
Relation of Pain to Pulmonary Tuberculosis.....
.....Stuart Pritchard, M.D., Battle Creek, Mich.
Pulmonary Neoplasm.....P. M. Hickey, M.D., Ann Arbor, Mich.
Tuberculosis in Childhood...H. E. Kleinschmidt, M.D., New York City
Early Diagnosis of Tuberculosis in Children.....
.....R. S. Battersby, M.D., Columbia
Basal Metabolism in Pulmonary Tuberculosis.....
.....Alphonse McMahon, M.D., St. Louis
Pulmonary Lesions Secondary to Dental Infection; Illustrated With
Lantern Slides.....Albert S. Welch, M.D., Kansas City
The Treatment of Laryngeal Tuberculosis: Demonstration of Cases..
B. J. McGinnis, M.D., Mt. Vernon, and E. E. Glenn, M.D., Mt. Vernon

GENERAL MEETING

Wednesday, May 15, 1929—1:30 P. M. to 3:30 P. M.
Kentwood Arms Hotel

Tuberculosis and Chest Clinic:

Presentation of Cases

The Etiology of Cough.....Stuart Pritchard, M.D., Battle Creek, Mich.

At 3:30 p. m. the General Meeting will adjourn and the House of Delegates will immediately go into session.

GENERAL MEETING

Wednesday, May 15, 1929—7:30 P. M. Kentwood Arms Hotel

Address of the President.....Frank I. Ridge, M.D., Kansas City

Address of the President-Elect.....T. W. Cotton, M.D., Van Buren

Preventive Medicine, Past, Present and Future.....
.....J. H. J. Upham, M.D., Columbus, Ohio

GENERAL MEETING

Thursday, May 16, 1929—8:30 A. M. Kentwood Arms Hotel

Symposium on Fractures:

Fractures of the Jaw.....Vilray P. Blair, M.D., St. Louis

Fractures of the Upper Extremity..Rex L. Diveley, M.D., Kansas City

Fractures of the Lower Extremity..H. Lewis Hess, M.D., Kansas City

Fractures of the Spine.....Archer O'Reilly, M.D., St. Louis

Discussion opened by Dr. P. M. Hickey, Ann Arbor, Michigan; Dr. LeRoy Abbott, St. Louis, and Dr. Robert M. Schaufler, Kansas City

General Considerations of Treatment of Fractures.....
.....Philip D. Wilson, M.D., Boston, Mass.

Syndrome of Intraperitoneal Hemorrhage.....

.....Logan Clendening, M.D., Kansas City

Some of the Causes of Death Following Operations for Appendicitis

.....F. Reder, M.D., St. Louis

Present Status of Injection Treatment of Varicose Veins.....

.....Robert F. Hyland, M.D., St. Louis

Closure Without Drainage.....Caryl Potter, M.D., St. Joseph

GENERAL MEETING

Thursday, May 16, 1929—1:30 P. M. Kentwood Arms Hotel

Ambulant Management of Peptic Ulcer.....F. D. Gorham, M.D., St. Louis

Fetal Liver Feeding in Aplastic Anemia.....

.....J. H. J. Upham, M.D., Columbus, Ohio

Agranulocytic Angina; With a Recovery..A. B. Jones, M.D., Kansas City

Diagnosis and Treatment of Maxillary Sinus Disease.....

.....O. S. Gilliland, M.D., Kansas City

Comparative Study of Coalescent Mastoiditis and Hemorrhagic

Mastoiditis.....C. F. Pfingsten, M.D., St. Louis

Primary Plastic Reconstruction of Lower Lip Following Extensive

Removal for Carcinoma; Illustrated With Lantern Slides.....

.....Frank J. Tainter, M.D., St. Louis

Goiter Surgery as Encountered in Patients From the Ozark Region..

.....F. T. H'Doubler, M.D., Springfield

Observations on Spinal Anesthesia; Report of Five Hundred Cases...

.....C. H. Wallace, Jr., M.D., St. Joseph

TWENTY-FIRST ANNUAL MEETING OF MISSOURI SOCIETY OF MEDICAL SECRETARIES

Wednesday, May 15, 1929—6:00 P. M.—Kentwood Arms Hotel

President, Dr. C. H. Dixon, Moberly.

Vice President, Dr. R. S. Kieffer, St. Louis

Secretary, Dr. J. T. Hornback, Nevada.

The secretaries will meet at dinner in the Kentwood Arms Hotel.

PROGRAM

Address of Welcome.....Dr. C. H. Dixon, President

Address

Dr. J. H. J. Upham, Columbus, Ohio, Trustee, American Medical Association

The Psychology of the Medical Secretary.....

.....Dr. J. J. Gaines, the silver-tongued orator of Excelsior Springs

Suggestive Programs for County Societies....Dr. Frank I. Ridge, Kansas

City, President, Missouri State Medical Association, and Dr. J. Milton

Singleton, Kansas City, Secretary, Jackson County Medical Society

State Legislation

.....Dr. E. J. Goodwin, Secretary, Missouri State Medical Association

Election of Officers.

WOMEN'S AUXILIARY, MISSOURI STATE MEDICAL ASSOCIATION, FIFTH ANNUAL MEETING

Officers 1928-1929

President, Mrs. Willard Bartlett, St. Louis.
President-Elect, Mrs. M. P. Ravenel, Columbia.
1st Vice President, Mrs. Harry F. Parker, Warrensburg.
2nd Vice President, Mrs. T. O. Klingner, Springfield.
3rd Vice President, Mrs. M. A. Hanna, Kansas City.
4th Vice President, Mrs. James F. Owens, St. Joseph.
Corresponding Secretary, Mrs. Theodore Prewitt Brookes, St. Louis.
Recording Secretary, Mrs. David S. Long, Harrisonville.
Treasurer, Mrs. W. H. Goodson, Liberty.
Auditor, Mrs. Vilray P. Blair, St. Louis.
Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaufler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Hinchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

PROGRAM

Tuesday, May 14, 1929—9:00 A. M. Colonial Hotel

Registration, Mezzanine Floor. Secure tickets necessary for theater and luncheons.

10:00 A. M.—Committee Meetings

12:30 P. M.—Luncheon, Maxwell's Ontra

Given by the Greene County Auxiliary to State Executive Board, delegates, and visiting women.

EXECUTIVE BOARD MEETING

Tuesday, May 14, 1929—2:30 P. M. Colonial Hotel

Mrs. Harry F. Parker, Warrensburg, Presiding

6:30 P. M.—Colonial Hotel

Informal subscription dinner, \$1.00, for all Auxiliary women.

7:30 P. M.—Theater Party

Complimentary theater party for visiting women. This is the night set aside for fraternity and alumni gatherings for the men.

Wednesday, May 15, 1929—8:30 A. M. Colonial Hotel

Registration, Mezzanine Floor.

9:00 A. M.—12:00—Colonial Hotel

Opening session, Annual Meeting of Women's Auxiliary. Mrs. Willard Bartlett, St. Louis, presiding.

Address of Welcome.....Mrs. Paul F. Cole, Springfield
ResponseMrs. W. T. Martin, Albany

Appointment of Committees.

Report of Credentials Committee.

Reports of Officers.

Reports of Chairmen of Standing Committees.

Report of Nominating Committee.

Election of Officers.

Unfinished Business.

12:30 P. M.—Colonial Hotel

Open luncheon, \$1.00, dining room, Colonial Hotel.

Official guests: Dr. J. H. J. Upham, Columbus, Ohio, Dean of Ohio State University College of Medicine, and Trustee of the American Medical Association; Dr. Frank I. Ridge, Kansas City, President, Missouri State Medical Association; Dr. T. W. Cotton, Van Buren, President-Elect, Missouri State Medical Association; Mrs. George H. Hoxie, Kansas City, President-Elect of the Woman's Auxiliary to the American Medical Association; Mrs. M. P. Ravenel, Columbia, President-Elect, Women's Auxiliary to the Missouri State Medical Association.

InvocationReverend A. J. McClung, Springfield
Reports from Presidents of County and City Auxiliaries.

Round Table Discussion: Opportunities for Cooperation; Their Uses and Results. Leader, Mrs. W. M. Bickford, Marshall.

(1) State Board of Health Services Involving Cooperation of the Public

.....Miss Pearl McIvor, Jefferson City,
Director, Child Welfare Bureau, State Board of Health

(2) Parent-Teacher Cooperation for Public Health.....

.....Mrs. A. B. McGlothlan, St. Joseph

- (3) The Greene County Health Unit.....
.....Dr. John H. Williams, Jr., Springfield, Director
- (4) The Next Step in Tuberculosis Control.....
.....Dr. H. E. Kleinschmidt, New York City, Director of Health
Education, National Tuberculosis Association
- (5) The Teachers' Health Teacher of Jackson County.....
.....Mrs. George H. Hoxie, Kansas City
- (6) County Auxiliary Cooperation With Other Welfare Agencies.....
.....Mrs. W. L. Kenney, St. Joseph, and others

3:30 P. M.—Colonial Hotel

Meeting of new State Executive Board. Mrs. M. P. Ravenel, Columbia, presiding.

4:00 P. M.—Musical Tea

Given by Greene County Auxiliary to delegates and guests at the home of Mrs. T. O. Klingner, 951 Pickwick Avenue.

8:00 P. M.—Kentwood Arms Hotel

Open meeting of Missouri State Medical Association.

Thursday, May 16, 1929—9:30 A. M. Colonial Hotel

Open Forum. Volunteer discussion meeting.

11:00 A. M.—Auto Drive

Automobile drive to points of interest including State Park and Sequiota Cave, as guests of Hostess Committee.

HOSTESS COMMITTEE

Mrs. A. L. Anderson, Mrs. Harold Bailey, Mrs. W. R. Beatie, Mrs. E. M. Box, Mrs. T. S. Bruton, Mrs. U. J. Busiek, Mrs. Guy D. Callaway, Mrs. W. C. Cheek, Mrs. Paul F. Cole, Mrs. W. A. Delzell, Mrs. M. T. Edmondson, Mrs. C. B. Elkins, Mrs. E. L. Evans, Mrs. C. E. Feller, Mrs. J. P. Ferguson, Mrs. E. M. Fessenden, Mrs. S. F. Freeman, Mrs. Charles A. George, Mrs. A. W. Gifford, Mrs. W. E. Handley, Mrs. F. T. H'Doubler, Mrs. Garrett Hogg, Mrs. O. C. Horst, Mrs. T. O. Klingner, Mrs. Arthur Knabb, Mrs. Henry Knabb, Mrs. Joseph W. Love, Mrs. F. H. Maples, Mrs. J. P. McCann, Mrs. R. L. Pipkin, Mrs. G. M. Powell, Mrs. J. E. Rayl, Mrs. J. A. Robertson, Mrs. W. S. Sewell, Mrs. Wilbur Smith, Mrs. Murray C. Stone, Mrs. J. W. Williams, Jr., Mrs. Robert Williams, Miss Eleanor Cox, Miss Verna Knabb.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.
Ralls County Medical Society, December 17, 1928.
Chariton County Medical Society, December 28, 1928.
Mercer County Medical Society, January 2, 1929.
Camden County Medical Society, January 11, 1929.
Benton County Medical Society, February 13, 1929.
Dent County Medical Society, April 3, 1929.
Marion County Medical Society, April 8, 1929.
Platte County Medical Society, April 11, 1929.
Atchison County Medical Society, April 22, 1929.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met March 20, 1929, at 8:00 p. m.

Dr. Daniel Morton, St. Joseph, addressed the Society on "Natural Gas Poisoning." The symptoms, diagnosis and treatment were discussed at length.

Dr. Morton's paper was discussed by Drs. W. T. Elam, Julius Kangisser, W. L. Kenney, W. T. Stacy, F. H. Spencer and P. R. McGill, St. Joseph.

Schäfer's method of artificial respiration was discussed and is the method of choice in starting respiration. The best stimulus for deep breathing is to supply enough carbon dioxide (5 per cent) with oxygen. This requires a special apparatus which should be kept ready for use by gas companies and large hospitals.

Dr. C. O. Dewey, of State Hospital No. 2, St. Joseph, addressed the Society on "General Paresis; Its Symptoms, Diagnosis and Treatment." He described the technic in the administration of malaria plasmodia. This form of treatment has been used at State Hospital No. 2 for some time and better results have been obtained than from any other form. Many patients have recovered sufficiently to return home and resume their regular occupations. Dr. Dewey stated that it was too early to offer any opinion as to the permanency of this improvement, but said there have been no ill effects or serious reactions in those who have undergone this treatment.

Dr. Dewey's paper was discussed by Drs. L. C. Bauman and H. DeLamater, St. Joseph.

T. L. HOWDEN, M.D., Secretary.

BOONE COUNTY MEDICAL SOCIETY

The Boone County Medical Society met at Columbia, April 2, 1929, following a meeting of the Boone County Hospital staff. Dr. W. R. Shaefer, Columbia, called the meeting to order at 8:00 p. m. Sixteen members were present. The minutes of the previous meeting were read and approved.

A letter from Dr. E. J. Goodwin, St. Louis, Secretary of the State Association, was read concerning the payment of dues of junior members.

The program committee reported that Dr. Max Ellis will give a talk on "Cataract" at the next meeting.

Dr. F. C. Suggett, Columbia, reported that the Boone County Health Unit nurses will give a program on prenatal care before the Women's Auxiliary.

Dr. Claude R. Bruner, Columbia, gave a very interesting talk on "Surgery of the Nose."

Dr. G. Kenneth Coonse, Columbia, addressed the Society on "Diagnosis of Back Lesions."

HUGH P. MUIR, M.D., Secretary.

CALDWELL COUNTY MEDICAL SOCIETY

The Caldwell County Medical Society met in Polo, April 4, at two p. m. in the office of Dr. B. F. Carr. Members present: Dr. Tinsley Brown, Hamilton; Dr. H. H. Patterson, Braymer; Drs. B. F. Carr and C. H. Wilbur, Polo; Dr. E. A. B. Thompson, Breckenridge. The minutes of the meeting held at Braymer, September 26, 1928, were read and approved.

The following officers were elected for 1929: President, Dr. G. S. Dowell, Braymer; vice president, Dr. C. H. Wilbur, Polo; secretary-treasurer, Dr. Tinsley Brown, Hamilton; delegate, Dr. Tinsley Brown; alternate, Dr. E. A. B. Thompson, Breckenridge.

On unanimous vote, Dr. B. F. Carr, Polo, was elected an Honor Member due to his long period of membership in the Society and his age.

The committee on resolutions on the death of Dr. James Edward Gartside, Kingston, composed of Drs. C. H. Wilbur, E. A. B. Thompson and Tinsley Brown, presented the following resolution which was adopted:

WHEREAS, It has pleased our Lord to take from our midst Dr. James Edward Gartside, Kingston, a faithful member of Caldwell County Medical Society, therefore be it

Resolved, That we, as members of said Society, extend to his wife and family our heartfelt sympathy, and be it further

Resolved, That in his death a loving husband and father has gone to his reward, and our Society has lost a faithful member, and the community a loved physician and honored citizen, and one who gave the best of his life for the relief of the ills of mankind. Nurtured in the old school of tradition, he graced and dignified the commonplace by his presence, and he it further

Resolved, That a copy of this resolution be sent to the family of the deceased, be spread on the minutes for a permanent record, and for publication in THE JOURNAL of the Missouri State Medical Association.

C. H. WILBUR,
E. A. B. THOMPSON,
TINSLEY BROWN,
Committee.

CHRISTIAN COUNTY MEDICAL SOCIETY

The Christian County Medical Society held its annual meeting at Ozark, April 4, 1929, the guests of Drs. J. H. Wade and J. C. Young. The following officers were elected for 1929: President, Dr. W. B. Wasson, Nixa; vice president, Dr. J. H. Wade, Ozark; secretary-treasurer, Dr. F. H. Brown, Billings; delegate, Dr. E. E. Wade, Clever; alternate, Dr. W. B. Wasson, Nixa.

We have but one delinquent member on our rolls.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society is bigger, stronger, and better than ever before in its history. That is saying a good deal, but Dr. Spence Redman, our beloved Councilor, of Platte City, said so at our meeting in Liberty, March 28, 1929, when we elected officers for 1929. It is men like Dr. Redman that help other medical men to stand firm in the noble profession to which we belong.

There were twenty-four seated at the dinner table at Liberty's famous Jack-O-Lantern Service Cafe. Among them, Dr. C. C. Conover, of Kansas City, whom we made an honorary member—just as a matter of form, you know—for Dr. Conover is a full brother of ours. You ought to have heard his talk on "Rheumatic Fever" and the discussion which followed on its relation to infected tonsils, to the endocardium and myocardium, to nephritis, pneumonitis, etc. This is the sort of conversation that makes better physicians—if our absentees only knew it.

The Society paid its respects to militant quackery, newspapers of easy advertising virtue, and lawyers with low moral standards.

Officers elected for 1929 are: President, Dr. Y. D. Craven, Excelsior Springs; vice president, Dr. W. L. Wysong, Liberty; secretary, Dr. J. J. Gaines, Excelsior Springs; censor for three years, Dr. F. H. Matthews, Liberty; delegate, Dr. S. R. McCracken, Excelsior Springs; alternate, Dr. C. H. Suddarth, Excelsior Springs.

We added two members to the roll at this meeting, Dr. H. D. Luse, medical officer in charge, U. S. Veterans Hospital No. 99, Excelsior Springs, and Dr. James R. Henry, son of Dr. S. D. Henry, of Excelsior Springs.

The Society unanimously passed a resolution inviting the State Association to meet at Excelsior Springs in May, 1930, and instructed the delegates to press the invitation at the coming session in Springfield.

The secretary was instructed to notify all delinquents that unless dues are paid at once they will be dropped from the roll.

Our Society will meet in Excelsior Springs, April 25, the last Thursday in April.

J. J. GAINES, M.D., Secretary.

DENT COUNTY MEDICAL SOCIETY

Dent County Medical Society has elected the following officers for 1929: President, Dr. J. C. Welch, Salem; vice president, Dr. Lloyd H. Hunt, Salem; secretary-treasurer, Dr. W. E. Rudd, Salem; delegate, Dr. J. C. Welch, Salem; alternate, Dr. A. T. McMurtry, Salem.

W. E. RUDD, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The regular meeting of the Greene County Medical Society was held at Springfield, Friday night, February 22, 1929. The following members were present: Drs. E. M. Fessenden, J. W. Love, J. D. James, Arthur D. Knabb, A. W. Gifford, F. T. H'Doubler, W. J. Wills, A. D. Craig, L. L. Henson, Wallis Smith, H. A. Lowe, W. A. Delzell, J. N. Wakeman and W. T. Walsh, of Springfield; J. E. Dewey, of Fair Grove. Dr. T. H. Romeiser, Nevada, was a visitor. The meeting was called to order by the president, Dr. Arthur D. Knabb, Springfield, at 8:00 p. m. The minutes of two previous meetings were read and approved.

Dr. E. Lloyd Cartwright, Springfield, read a

very interesting paper on "Acute Abdominal Emergencies Complicating Pregnancy." Among the complications mentioned were hyperemesis gravidarum, appendicitis, pyelitis, cystitis, extra-uterine pregnancy, strangulation of ovarian cysts, torsion of fibroids.

Dr. William J. Wills, Springfield, opened the discussion which was entered into by Drs. J. D. James, Wallis Smith, J. E. Dewey and H. A. Lowe, Springfield.

Meeting of March 8, 1929

The Society met in regular session at the Springfield Public Library. The meeting was called to order at 8:00 p. m. by the president, Dr. Arthur D. Knabb, Springfield. Members present: Drs. Guy D. Callaway, Edwin F. James, W. R. Beatie, M. T. Edmondson, W. P. Patterson, J. E. Dewey, J. P. McCann, W. A. Delzell, H. A. Lowe, Robert Glynn, J. F. Leslie, Garrett Hogg, E. M. Fessenden, W. T. Walsh, J. N. Wakeman, A. L. Anderson, F. T. H'Doubler, L. L. Henson, G. B. Lemmon, O. C. Horst, A. W. Gifford, A. D. Knabb, Francis B. Camp, G. W. Hogeboom, J. A. Robertson, Wallis Smith, William J. Wills, of Springfield. Visitors: Dr. H. L. Kerr, Crane; Dr. J. H. Wade, Ozark; Dr. R. D. Cowan, Aurora.

All business was dispensed with and the speaker of the evening, Dr. George H. Knappenberger, Kansas City, was introduced. Dr. Knappenberger presented a very interesting, instructive and informal paper entitled "Colitis; Its Diagnosis and Treatment." He stressed the importance of diet, condemned the habitual use of cathartics, and emphasized the importance of taking a careful, thorough history in diseases of the gastro-intestinal tract.

After a general discussion the Society adjourned at 10:45 p. m. to meet March 22, 1929.

Meeting of March 22, 1929

The Society met in the banquet room of the Ontra Cafeteria, Springfield. Dr. Garrett Hogg, Springfield, chairman of the social committee, presided. This is the first of a series of semi-social and scientific programs to be given during the year.

The secretary, Dr. J. N. Wakeman, Springfield, read a telegram from Dr. E. J. Goodwin, St. Louis, Secretary of the State Association, urging members to send telegrams to our Representative opposing House Bill 660. The Society voted to oppose this bill and the secretary was instructed to send a telegram to our Representative to that effect.

Dr. William Rienhoff, Sr., Springfield, was elected an honorary member.

The scientific program included a paper on "The Conscious Pelvis" by Dr. W. A. Delzell, Springfield.

The Society adjourned at 10:30 p. m. to meet April 12, 1929.

J. NEWTON WAKEMAN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at the Joplin Y. M. C. A., March 19, 1929, at 8:00 p. m. with Dr. E. D. Hatcher, Carthage, president, in the chair. Twenty members and nine visitors were present. The minutes of the last meeting were read and approved.

Drs. L. C. Chenoweth, Joplin, and R. M. Stormont, Webb City, were elected delegates and Drs. J. L. Sims, Joplin, and C. C. Cummings, Joplin, were elected alternates to the Springfield meeting of the State Association.

Dr. O. F. Bradford, Kansas City, was introduced and gave a very interesting talk on "The Management of the New-Born." He gave several very helpful and practical points on the care of the young baby.

Dr. Buford G. Hamilton, Kansas City, talked on "Anesthetics in Obstetrics," making a very forceful plea for better obstetrics, and emphasizing the point that we endeavor to carry the mother through her labor with the least amount of pain possible, and that she be sent home with a live baby in as good physical condition as she was before pregnancy.

Both papers were freely discussed and enjoyed by all.

Meeting of March 26, 1929

The Society met in regular session at 8:00 p. m. in the Joplin Y. M. C. A., Dr. E. D. Hatcher, Carthage, president, presiding. There were twenty members and seven visitors present. The minutes of the last meeting were read and approved.

On motion, seconded and carried, Dr. John F. Morgan, Joplin, was elected an Honor Member.

Drs. W. B. York, Sarcoxie, and Guy I. Meredith, Joplin, were unanimously elected to membership.

It was moved, seconded and carried, that the Society invite the State Association to hold its 1930 Annual meeting in Joplin.

Dr. Frank Teachenor, Kansas City, gave a very thorough discourse on "Brain Tumors," illustrated by drawings and lantern slides. Dr. Teachenor reviewed the anatomy of the brain and gave the findings of the tumor as it was located in different parts of the brain. He also touched on operative measures and postoperative complications.

Dr. Homer Beal, Kansas City, talked on "Paranasal Sinus Infections," and outlined what could and should be done by the general practitioner in these cases.

Both papers were freely discussed, and at a late hour the meeting adjourned.

Meeting of April 2, 1929

The Society met at the Joplin Y. M. C. A. at 8:00 p. m., Dr. Roy E. Myers, Joplin, vice president, presiding. There were thirty-two in attendance. The minutes of the last meeting were read and approved.

Dr. W. W. Duke, Kansas City, gave a very interesting lecture on "Allergy as Related to the General Practice of Medicine." Dr. Duke covered the subject in detail, discussing the pollens, food, dust, smoke, and other agents to which certain persons are sensitive, and reviewing the treatment.

Dr. R. Claude Lowdermilk, Galena, Kansas, opened the discussion.

Meeting of April 9, 1929

The regular meeting of the Society was held at 8:00 p. m. in the Y. M. C. A. with Dr. E. D. Hatcher, Carthage, president, in the chair. Twenty-eight members and eight visitors were present. The minutes of the last meeting were read and approved.

Dr. E. H. Skinner, Kansas City, read an interesting paper on "The Diagnosis of Osteomyelitis, Syphilis, Tuberculosis, and Sarcoma of the Bone, by the X-Ray." He illustrated by lantern slides that the two first named conditions were constructive and the latter two were destructive processes.

The paper was well discussed and enjoyed.

H. L. WILBUR, M.D., Secretary.

THE KANSAS CITY ACADEMY OF
MEDICINE

Meeting of February 15, 1929

POSTOPERATIVE STOMACH CASES.—

By DR. M. J. OWENS.

Case 1. Man, aged 59. Had intermittent attacks of abdominal distress characteristic of peptic ulcer for thirty years. A few months ago had sudden severe pain and symptoms of shock. Diagnosis, perforated peptic ulcer.

At operation, five hours after onset of pain, an indurated, perforated ulcer of the posterior wall of the stomach near the pylorus was repaired by purse-string suture. Gastric lavage was done frequently thereafter while the wound healed. Keeping the stomach empty is a good therapeutic measure after gastro-enterostomy. Patient has had no distress since operation.

Case 2. Man, aged 41. Had intermittent abdominal distress and vomiting for twenty years. X-ray revealed a spastic pylorus suggesting gallbladder disease.

At operation the pylorus was found indurated and the gallbladder involved in adhesion. The gallbladder was released and a posterior gastro-enterostomy performed. Patient has been well since.

Case 3. Man, aged 40. Symptoms suggested a differential diagnosis between ulcer and carcinoma with pyloric obstruction. Had lost eighteen pounds.

At operation a pyloric mass was found involving the gastrocolic omentum. Biopsy revealed malignancy. The pylorus was resected and a posterior gastro-enterostomy performed. One year later he had gained thirty pounds, but symptoms of obstruction are reappearing and there is a nodule in the abdominal scar. The operation was done without clamps; bleeding vessels were thus seen and tied and the stomach wall was not crushed.

DISCUSSION

DR. T. G. ORR: If cases of perforated ulcer are not seen before twenty-four hours they may closely resemble appendicitis, and at operation bile-stained fluid in the peritoneal cavity may suggest the site of the lesion. In the presence of gastric cancer with glandular involvement, I doubt if resection gives better results than gastro-enterostomy. It should be remembered that all such cases do not terminate as nicely as those reported here tonight.

DR. CLAUDE HUNT: Gastric resection should be done where malignancy is suspected if there are no enlarged glands.

DR. GEORGE KNAPPENBERGER: Gastric ulcers are often healed medically, duodenal ulcers seldom.

DR. L. G. ALLEN: The roentgenologic diagnosis of carcinoma of the stomach depends largely upon the type of deformity found on the posterior wall.

DR. M. J. OWENS, in closing: Severe pain incident to perforated ulcer is an important sign in differentiating it from appendicitis. Morphine is seldom necessary in the latter condition. Concerning the differential diagnosis of ulcer and cancer, it should be remembered that adjacent glands may be enlarged by inflammation. Biopsy is indicated.

GASTRO-INTESTINAL CASES.—By DR.
G. E. KNAPPENBERGER.

Case 1. Man, aged 42. Had intermittent diarrhea fifteen years. Operated for acute gangrenous appendicitis in October, 1928. Diarrhea continued. Found no free gastric acid. Evidence by proctoscope of a catarrhal proctitis. Diagnosis, gastrogenic diarrhea.

The two outstanding factors in the production of a diarrhea from lack of free hydrochloric acid are, (1) food is not properly digested and becomes an irritant and (2) certain organisms are not killed as normally by the gastric juice and act on the colon. Morning diarrhea is often a prominent symptom. Treatment consists of low residue diet, a dram of dilute hydrochloric acid at each meal, and daily rectal insufflations of a calomel-bismuth powder.

Case 2. Man, aged 54, had achlorhydria but no diarrhea. Had a lesion resembling "shingles" that was diagnosed as anaphylactic. At one time the skin lesion improved while he took hydrochloric acid by mouth. This case of achlorhydria may be considered a congenital defect. Diarrhea does not always occur with achlorhydria. It may not develop for many years. Elderly people often have diarrhea and achlorhydria and improve on treatment.

Case 3. Middle aged woman. Diarrhea for 5 months. Achlorhydria. Recovery on HCl. The rectal mucosa in this case was not grossly altered.

DISCUSSION

DR. P. M. KRALL: Achylia occurs in many individuals who do not have diarrhea. The new-born infant normally has an achylia. The proteolytic organisms are increased in the bowel with achylia, and when diarrhea is present it is lessened by conserving carbon dioxide-producing bacteria in the colon. Patients with achylia are often anemic and the achylia is not always permanent. Pseudo-achylic diarrhea is associated with a low basal metabolic rate and improves under Lugol's solution.

DR. R. W. SWINNEY: At the Veterans' Hospital we found a group of patients, many of which had worked in garages, with low gastric acid and a correspondingly low red blood-cell count.

DR. ALBERT S. WELCH: In patients suffering with diarrhea, whose gastric analysis reveals no free hydrochloric acid and whose stools contain *Trichomonas*, administration of acid by mouth has caused disappearance of the organisms from the stool and cessation of the diarrhea. When the acid is stopped diarrhea does not reappear until the organisms reappear.

DR. KNAPPENBERGER, in closing: I consider *Trichomonas* infestation as having no pathological significance. About only one in ten cases of achlorhydria have diarrhea. There is no need to treat the achlorhydria unless the patient has symptoms.

POSTOPERATIVE CATARACTS, GLAUCOMAS, AND PTOSIS—By Drs. A. N.
LEMOINE AND JOS. S. LICHTENBERG.

Cases 1 and 2. Cataract in a man aged 64, and in a woman aged 62. In all cataract operations a conjunctival flap is made above and sutured to the sclera after the lens is expressed. With the ordinary iridectomy there is a coloboma of the iris that makes a keyhole pupil. When it is possible to dilate the pupil sufficiently the lens is expressed without doing an iridectomy, and after the suture is tied a small peripheral iridectomy is performed at the weakest point of the corneal incision, leaving a round normal functioning pupil with all the advantages of a complete iridectomy.

Case 3. Glaucoma in a man aged 47. Tension before operation 50 to 60 mm. With pilocarpin, the fields were down to within 10° all around. In spite of the danger of losing what vision he had it was necessary to operate to prevent early complete blindness. In all chronic, simple or inflammatory glaucomas we prefer the Elliot trephine operation which establishes artificial drainage for a cure. Patient

was operated on six months ago. Note a large filtering cicatrix above. His fields are slightly larger, his tension now 25 mm., the upper normal limit, and his vision with correction is 20/30 in each eye. The usual complication in these cases, late infection, has not occurred once in the past five years. The only complication we have had was hastened cataract formation in three, and all the other cases retain their former vision.

Case 4. Congenital ptosis of right eye in a man aged 22. Superior recti normal. Operation, a modified Motaïs. In all other types of operation an immobile upper lid is obtained unless patient pulls the brow up. Even then, function is markedly limited and the patient sleeps with the eye open. We transplant the central half of the superior rectus to the superior surface of the tissue of the lid. Note the perfect functioning lid that cannot be differentiated from the normal except when there is a slight lag as patient looks far downward. The eye closes perfectly.

ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held in the First Congregational Church, Webster Groves, Wednesday, March 13, 1929, at three p. m. The meeting was called to order by the president, Dr. A. W. Westrup, Webster Groves, with the following members present: Drs. E. O. Breckenridge and E. E. Tremain, of Maplewood; Dr. R. B. Denny, Creve Coeur; Dr. Garnett Jones, St. Louis; Dr. Frank P. Knabb, Valley Park; Dr. Otto W. Koch, Clayton; Dr. W. F. O'Malley, Webster Groves; Dr. D. Henry Hanson, Kirkwood.

Dr. LeRoy Sante, St. Louis, gave a very interesting and instructive talk on "The Uses of X-Ray and Radium in the Treatment of Malignant Diseases."

A letter from Dr. James Stewart, Jefferson City, Secretary of the State Board of Health, regarding the appointment of Dr. Louis C. Obrock as county health commissioner, was read.

Dr. Otto W. Koch, Clayton, was appointed by the president to represent the Tuberculosis and Health Society of St. Louis.

The application of Dr. Lewis A. Bradbury, U. S. Veterans' Hospital No. 92, Jefferson Barracks, was referred to the membership committee.

E. E. TREMAIN, M.D., Secretary.

WOMEN'S AUXILIARY

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BOONE COUNTY AUXILIARY

The Women's Auxiliary to the Boone County Medical Society has agreed to make twelve rompers for the crippled children in the University Hospital at Columbia. The rompers are to be worn over casts while the children are up and about during the day.

MRS. F. E. DEXHEIMER, Acting Secretary.

BUCHANAN COUNTY AUXILIARY

The Women's Auxiliary to the Buchanan County Medical Society held its second health luncheon at the Y. W. C. A. on Wednesday, January 16, 1929.

The speaker was Miss Alberta Chase, Executive Secretary of the Missouri Society for Crippled Children, who told of what the Crippled Children's Society had accomplished and its hopes for the future. Her talk was interesting and instructive and at its close she answered questions about her work and the survey that is to be made in Buchanan County.

Other organizations represented at the luncheon were: Federation of Women's Clubs, St. Joseph Council of the National Congress of Parents and Teachers, Red Cross, Visiting Nurse Association, Baby Welfare Association, Social Welfare Board, Buchanan County Tuberculosis, Y. W. C. A., and Missouri Society for Crippled Children. The Buchanan County Medical Society was represented by its president, Dr. H. DeLamater, St. Joseph.

MRS. C. H. WERNER, Chairman of Publicity, Buchanan County Auxiliary.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

JUNE, 1929

NUMBER 6

E. J. GOODWIN, M.D., EDITOR
1023 Missouri Building, St. Louis, Mo.

PUBLICATION } T. W. COTTON, M.D., Chairman
COMMITTEE } CLYDE O. DONALDSON, M.D.
M. A. BLISS, M.D.

ORIGINAL ARTICLES

VOMITING OF PREGNANCY*

R. J. CROSSEN, M.D.

ST. LOUIS

It is convenient in discussing this subject to divide it into the following subheads: Etiology, metabolic changes, classification of types, treatment and conclusions.

ETIOLOGY

There are many theories concerning the etiology of vomiting of pregnancy. Some of them are:

1. *Toxic Theory*.—According to Williams, nausea and vomiting of pregnancy are due to a specific toxic substance in the blood. Since the ordinary nausea and vomiting always precede pernicious vomiting he feels that the severe vomiting is due to an increase of the toxic substance in the blood. It is not necessary however to assume a specific toxin formed during pregnancy. When we consider the marked changes occurring in the various organs, a disturbance in their function seems to be a more reasonable theory.

2. *Neurosis Theory*.—There are undoubtedly a large number of cases in which this factor plays an important role in converting ordinary vomiting of pregnancy into vomiting of severe grade.

In some cases of retroversion the vomiting ceases on correction of the retroversion. The vomiting in these cases is supposed to be caused by reflex stimulation. Other conditions, such as constipation, nervous irritation from any cause, a period of starvation, dietary indiscretion, nasopharyngitis, sinusitis, etc., serve as the exciting cause in turning an ordinary vomiting of pregnancy into one of severe grade.

3. *The Carbohydrate Deficiency Theory*.—This theory seems to me to be the most logical theory today. The period of morning sickness and vomiting of pregnancy begins about the

third to the sixth week and terminates usually spontaneously at the 12th to the 14th week. It is during this period that the rate of growth of the ovum is greatest. By the end of the first month the increase in size is 10,000 times, the second month 74 times, third month 11 times and during the last month the rate of increase is only 0.3 times. The actual increase is small but the changes caused by pregnancy are tremendous. Furthermore, the uterus increases from an organ weighing 50 grams to one weighing 1000 grams. Most of this increase is in the first three months. During this period the nutrition of the ovum is derived entirely from the surrounding serum and inasmuch as food must go through the cell wall, only fat, carbohydrates and amino-acids are available. Fat has never been demonstrated passing through to the embryo or fetus nor is there any special storage of fat in the endometrium. On the other hand, there is a large storage of glycogen in the premenstrual endometrium which is increased in the decidua and also in the placenta. Furthermore, the glucose is not only more available than the amino-acids but can gain entrance to the ovum by osmosis, while the amino-acids require some fixing on the fetal side before they can be utilized. In addition, it is at the end of the first trimester that the nausea and vomiting usually cease and it is also about this time that the placenta becomes differentiated so that amino-acids and glucose can be more rapidly absorbed by the villi in the circulating blood. Experimentally, Barr found in dogs that there is a period of negative nitrogen balance (that is, more nitrogen is put out by the body than is taken in), which means that some of the body proteins are being used to form glucose for the use of the ovum and placental carbohydrate storage.

This period of negative nitrogen balance corresponds closely to the development of the placenta and at about the time of the completion of the placenta, the nitrogen balance becomes positive, which means that proteins are being stored in the body. During this period of placental formation and negative nitrogen balance there is a distinct distaste for food and

*Read before the Marion County Medical Society, Hannibal, November 2, 1928.

some vomiting. The negative nitrogen balance has also been shown in woman by Harding, who found that even small amounts of carbohydrates caused the nitrogen excretion to be decreased (the so-called sparing action of carbohydrates). Thus it seems probable that the lack of carbohydrates is responsible for the perverted fat metabolism and hence the formation of acetone and ketones and that the body protein destruction takes place to provide its portion of carbohydrates. All of our cases who were cured of the vomiting went through the rest of the pregnancy without further signs of toxemia. Occasional attacks of vomiting did occur due to dietary discretion, but few recurrences. The subsequent treatment is merely dietary, maintaining a high carbohydrate diet. We found that some patients who had had marked nausea and vomiting with the first pregnancy, have gone through subsequent pregnancy without any or with very little nausea or vomiting with proper supervision.

4. Lastly we must not allow the fact that the woman is pregnant to cause us to overlook a chronic appendix or other evident cause for vomiting. So often one jumps to the conclusion that because a patient is pregnant her vomiting must be due to the pregnancy. A careful review of the history together with laboratory tests will help us in a differential diagnosis. If unable to determine conclusively the cause of the vomiting, a high carbohydrate diet should be tried; if it is an uncomplicated vomiting of pregnancy the persistent vomiting will usually cease within 72 hours.

METABOLIC CHANGES

So much for the etiology. Whatever the etiological factor that started the vomiting may have been, once it has started a vicious circle is begun. The vomiting with its resulting starvation causes dehydration and depletion of body glycogen which in themselves cause vomiting.

Blood Changes.—The dehydration results from the decreased or lack of water intake. This in turn causes a concentrated viscous blood which naturally decreases the volume flow through all organs and tissues thus decreasing the amount of food, water and oxygen carried to the cells, and permitting waste products to accumulate. The increased viscosity and decreased volume flow have been shown experimentally. Ewing in autopsies on cases dying of pernicious vomiting found that the saline that had been given by rectum had failed to be absorbed. In two cases the blood was found remarkably thick, viscous and cohesive to an extent that he had never seen in any other condition and which must have been of itself dangerous to life.

The dehydration also accounts for the apparent increase in cell volume and hemoglobin which of course are only relative; actually these are decreased. There is also a decrease electrolyte in severe vomiting due to the loss of body fluid.

The HCl of the stomach is formed from the H_2CO_3 and NaCl of the blood. The HCO_3 combines with sodium to give NaHCO_3 with a resulting increase of CO_2 . Normally the Cl ion is reabsorbed by the intestine to be used again; but if the HCl is lost by vomiting, an excess of unneutralized NaHCO_3 will collect in the system causing an uncompensated alkalosis. If the patient is able to compensate by keeping the acid base equilibrium normal, there will be no tetany; but if the alkali reserve is increased without being compensated, an alkalosis will result and tetany is likely to occur.

It has been shown experimentally in dogs that the gastric glands continue to excrete HCl despite a low blood chlorid thus indicating not only the urgency of stopping the vomiting with its resulting loss of HCl but also the danger of repeated gastric lavage in these cases.

The CO_2 combining power has been shown by Hasselbach and Gammelthof, and van Slyke to be decreased in normal pregnancy. Cook found a decreased combining power three days after a missed period. Many workers have interpreted this as a mild or borderline acidosis. The determination of the CO_2 combining power however gives no index of the acid base equilibrium of the body. This can only be found by determining two of the following: the reaction of the blood called PH , the CO_2 combining power, the alveolar CO_2 tension. Mornack and Boone concluded from determination of CO_2 combining power and PH of the plasma, that usually in pregnancy the acid base equilibrium is normal or a mild alkalosis exists.

In severe vomiting the total proteins of the blood are reduced due to destruction of body proteins. These are utilized to form glucose in response to the body's demand for carbohydrates. The loss of body water is due in part to a destruction of body proteins with release of its water content; also reduction of tissue glycogen causing a decrease in cell volume. Three conditions found in severe vomiting of pregnancy must be remedied before the body is able to retain the fluid given it. They are: the carbohydrate deficiency, the lowered electrolyte and the lowered body protein. Rubner noted in starvation that an animal can lose practically all of its fat and glycogen and half of its body protein and still live, whereas a loss of 10 per cent of the body water results in serious disorders and the loss of 20-22 per cent results in death. Marriott finds in anhy-

dremic athreptic babies where the condition has existed too long nothing will prevent death yet autopsy reveals little or no pathology.

Urine Changes.—As a rule acetone or diacetic are found in the urine but qualitatively they give no index as to severity of the case. As starvation continues they do not increase progressively but reach a maximum in 5 to 6 days, then decrease. This was demonstrated in one of our worst cases where there was only a faint trace of acetone as shown by the nitroprussid test.

Chlorids are decreased in the urine due to the effort on the part of the body to maintain the electrolyte equilibrium and also the acid base equilibrium.

The NH_3 coefficient of the urine is usually increased but this is valueless as to a prognostic acid, for the low total nitrogen found in cases of vomiting pregnancy would naturally increase the proportion of urinary ammonia NH_3 . Furthermore, the NH_3 is not produced solely by the liver as its use as a prognostic guide presupposes.

The metabolic changes as shown by the blood and urine findings can be summarized as follows:

1. Dehydration is present as shown by concentration of the blood. There is a normal viscosity, a relatively increased but actually decreased cell volume and hemoglobin, an elevated NPN, and urea and relatively increased uric acid in the blood. There is a loss of weight due to dehydration.

2. There is a mild or compensated alkalosis as shown by the increased CO_2 combining power, slightly alkaline pH and increased CO_2 content of the blood.

3. There is an increased demand for carbohydrate as shown by the breaking down of body protein in an effort on the part of the body to supply glucose for the maintenance of a normal blood sugar level.

4. There is a loss of HCl due to vomiting of gastric juice as shown by decreased electrolyte of the blood, and the low chlorid content of the urine. The chlorids later disappear from the urine and are used in the body in an effort to maintain the electrolyte balance.

CLASSIFICATION

For purposes of treatment the patient must be classified into one of two groups, i. e., mild or severe. In the mild group are placed those cases which present the following features:

1. The nausea and vomiting is of an intermittent type, some water or nourishment being retained. The weight is stationary or there is only a slight loss.

2. There is acetone or diacetic acid in the urine.

3. The blood and urine findings are normal except for the ketonuria just mentioned.

The severe cases are characterized by the following findings:

1. The vomiting is so frequent in the severe cases that the patient retains very little nourishment. In very severe cases the vomiting continues between meals causing a loss of gastric juice which becomes serious because of the loss of hydrochloric acid.

2. Concentration of the urine with its attendant effects. Acetone may be marked in the early stage, reaching a maximum and then decreasing, so that the acetone and diacetic may be absent even in a severe case.

3. Changes in the constitution of the blood as already outlined.

4. Dehydration.

5. Normal or elevated temperature and pulse, probably due to dehydration.

6. Increased bile pigments in the blood and sometimes clinical jaundice. These changes are probably due to an increased production and a decreased secretion of bile pigments. The icteric index is helpful in following the progress of these cases. The Rosenthal test shows marked retention of the dye at times but this rapidly becomes normal when fluid and carbohydrates are supplied.

TREATMENT

Now to come to the practical application of these facts. After we have classified the patient, what are we going to do for her?

Mild Cases.—The mild cases are placed on a high carbohydrate diet, consisting of cereals, toast, crackers, potatoes, lean meats, with feedings of small amounts every two or three hours. Fruit juice or Jello is given between the feedings. One feeding is given at midnight and one early in the morning before rising. Luminal is given as a sedative by mouth the dosage being $\frac{1}{2}$ grain three times a day. If luminal is not available, bromid is used, 10 grains three times a day. The bowels are regulated and any nose or throat irritation treated. Dilute HCl, ten drops in half a glass of water fifteen minutes before meals, has proved helpful in these cases. The basis for this treatment is, that there is a lowered acidity of the gastric content in early pregnancy. This is very low when vomiting is present as has been shown by Artz.

Severe Cases.—In the severe cases, and the mild cases which do not yield readily to the above treatment, time is saved by getting the patient into a hospital for intensive treatment.

The following is our routine:

1. Nothing by mouth for forty-eight hours.
2. Daily enema.
3. Luminal sodium, grams .09 hypodermical-

ly every six hours day and night until the sedative effect is achieved. It should be remembered that this drug demonstrates its hypnotic effect only after eight to twelve hours.

4. Subcutaneous saline or better Ringer's solution 1000-1500 cc. twice daily.

5. Intravenous glucose 1000 cc. three times daily or 1500 cc. twice daily.

6. Sodium bromid five to six grams as a starch retention enema once or twice daily until the luminal has had time to act.

After forty-eight hours an Andrew's nasal tube is inserted and left in for forty-eight hours or more. Through this tube injections of 10 per cent Karo syrup and 2 to 5 per cent Dryco in skimmed milk are made, beginning with 50 cc. every hour and increasing to tolerance, which is usually 300 cc. The concentration of the Karo syrup may be decreased if diarrhea or glycosuria appears. Skimmed lactic milk or buttermilk are better than Dryco. The luminal is given by tube instead of hypodermically. After the patient begins to show progress and retains the food given, the tube is removed. A dry diet as outlined above is then given every two hours with a midnight and morning feeding. The diet is gradually increased but the midnight and morning feedings are usually continued throughout pregnancy if there is a tendency to have a return of vomiting. Fat ingestion is kept low. The underlying principles of this treatment are: (a) Change of environment with physical and mental rest; (b) sedatives, patients do not usually vomit when asleep; (c) the initial fast allowing for the stomach to rest; (d) saturation of the body with fluids, salts and carbohydrates until body fluids are normal.

The glucose for intravenous use must be chemically pure and freshly distilled water must be used. The apparatus must not be used for anything but glucose and must be sterilized in a sterilizer used only for this purpose. The glucose must be kept at the proper temperature, namely 104 to 106 degrees F. One hundred grams of glucose can be given in 60 to 90 minutes. This can be repeated every 4 to 6 hours without glycosuria. If the sugar tolerance is low, insulin may be needed, but this is not necessary if the sugar is well assimilated. If needed, the insulin should be added to the glucose solution in the proportion of one unit of insulin to every 3 grams of glucose.

The test of treatment enables us to divide the severe cases into two groups, the moderately severe, which yield to the above treatment, and the extremely severe, in which other measures must be considered. The question arises as to when an abortion is indicated and it is indeed a difficult question to answer. After

a prolonged period of vomiting with mental changes, jaundice, decreased electrolyte and blood protein, anemia, abortion must be seriously considered. Patients who do not improve with the above treatment and, in addition, have been transfused to supply blood proteins and electrolyte, should be aborted.

The cases of vomiting of pregnancy entering Barnes Hospital since 1916 have been arranged into three groups:

Group 1, reported by Dr. Otto Schwarz: 1916-21 nutrient enemata, salt and soda bicarbonate subcutaneously and intravenously. In this series there were 11 cases with six abortions and one death.

Group 2, reported by Drs. Otto Schwarz and Wm. J. Dieckmann: 1921-24 given intravenous glucose, subcutaneous saline, nasal tube, glucose enemata. In this there were 15 cases, no abortions and one death.

Group 3, reported by Drs. Wm. J. Dieckmann and R. J. Crossen:¹ 1924-27 larger amounts of intravenous glucose, subcutaneous saline and Ringer's solution, nasal tube and luminal; 33 cases, no abortions and one death. In a review of the case that died, we felt that we might have saved her life had an abortion been performed shortly after she entered the hospital.

CONCLUSIONS

1. Vomiting of pregnancy is due to deranged maternal metabolism with special reference to carbohydrate deficiency. The pathologic urine and blood findings are not the causes of the vomiting but the direct results of vomiting, starvation and dehydration.

2. Severe vomiting of pregnancy is characterized by dehydration, as evidenced by dry skin and tongue, increased viscosity of the blood, relatively increased hemoglobin and cell volume, even with an actual anemia. Lowered total electrolyte and plasma protein of the blood. Mild alkalosis with a carbohydrate deficiency, increased bile pigments and sometimes clinical jaundice. There may be mental changes of the exhaustive psychosis type.

3. Vomiting of pregnancy should be treated by supplying the deficiencies, namely, food, fluid and salts. Alkalies are dangerous for there is either a normal acid base balance or a compensated alkali excess. A general plan is outlined but each case must be studied and all facts bearing on the case must be used in deciding how the treatment must be adapted to the case. A case presenting hypothyroidism or hyperthyroidism, diabetes or heart trouble, naturally requires appropriate treatment for these special conditions. If the rules for prepa-

1. Dieckmann, W. J., and Crossen, R. J.: Changes in Metabolism and Their Relation to the Treatment of Vomiting of Pregnancy, *Am. J. Obst. & Gynec.* 14:3 (July) 1927.

ration of glucose as outlined are followed there is very little danger in giving the glucose intravenously. Insulin is indicated only when there is a low sugar tolerance.

4. Long periods of severe starvation produce changes in the body which will cause death with no findings at autopsy. Death is probably due to a pathologic physicochemical change in the body cells which cannot be seen microscopically. The series of 48 cases since 1921 with only one that would not yield to conservative treatment shows that the therapy in this condition has been greatly changed since the introduction of intravenous glucose. The systematic study of the metabolism in general and especially carbohydrate metabolism, together with a study of the acid base balance of the body, will give us much enlightenment as to the etiology, pathology and treatment of vomiting of pregnancy.

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BRONCHIECTASIS*

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MT. VERNON, MO.

Bronchiectasis, as described by Hedblom¹, is an infection in a pathological dilatation in one or more bronchial segments. Stuart Pritchard says bronchiectasis is not a disease but a condition,—the result of disease in which the bronchial tree shows pathological dilatation. Regardless of which is correct, the fact remains that there is pathological dilatation of the bronchial segments. Various co-existing stages of inflammatory thickening, ulcerating thinning and cicatricial constriction of the bronchial walls characterize the pathological anatomy and determine clinical manifestation of the disease. Infection may remain limited to the bronchial walls or extend into the lung parenchyma, with resulting sclerosis or pulmonary abscess, or both.

There has been very little written about the pathology of this disease. MacCallum² states that it is the result of partial obstruction of the bronchi, and that the dilatation is caused by the constant resistance to the passage of air, with the strength being on the side of the inspiration rather than expiratory phase of respiration. He points out that Crow was unable to produce dilatation in the uninfected, partially obstructed bronchi of a dog's lungs. So, no doubt, one of the main causative factors is weakening of the bronchial walls due to some infection. We are unable to determine the specific organism; perhaps the spirochetes, which are common in the mouth and

sinus and about the teeth, are the causative factors. David T. Smith,³ pathologist and bacteriologist of the State Sanatorium, New York, points out the frequency with which spirochetes and fusiform bacilli are found in sputum taken from the tracheas and bronchi of patients suffering from bronchiectasis, as well as in the tissue surrounding the bronchi. He also points out the resemblance to the pathology of this disease to that of syphilitic endarteritis, that is, the destruction of the elastic fibers in the bronchial walls. His work on this subject is probably more recent and more complete than any in this country. It has been our experience at the Missouri State Sanatorium that spirochetes and fusiform bacilli are found in practically every patient suffering from bronchiectasis, and I am of the opinion that these are the more important organisms. However, there is little doubt but what some of the other organisms play a definite part, especially the anaërobic cocci.

Bronchiectasis may be unilateral or bilateral, localized or diffuse, cylindric, saccular or fusiform. It usually affects the lower lobe only and the left more often than the right. Dilatation of the bronchi may be congenital or acquired. In the congenital type, infection determines the onset of symptoms. In the acquired infection, the various mechanical factors play a variable, combined role in producing the dilatation.

Diagnosis of bronchiectasis was chiefly an exclusion diagnosis before the time of injection of iodized oil. Symptoms characteristic of the disease are cough, weakness, blood-streaked sputum in small or large amounts, or even small hemorrhages; there is fever, loss of weight, even night sweats, and in general the condition is very typical of pulmonary tuberculosis. Physical examination shows few abnormalities and these are often limited to a few rales at the base. Dullness or tympany and changed respiratory fremitus vary with extension of the disease, size of cavitation and position of the patient; usually, nothing definite is found on physical examination. X-ray rules out the presence of pulmonary tuberculosis. As you know, the uncertainty of X-ray diagnosis of pulmonary tuberculosis often leads us to treat patients for early pulmonary tuberculosis when in reality they are suffering from bronchiectasis.

With the introduction of iodized oil as a contrast medium in roentgenography these difficulties and uncertainties have been largely obviated and now for the first time there is an available method of diagnosis of bronchial lesions comparable in every respect with contrast mediums in the diagnosis of gastro-in-

* Read before the Southwest Missouri Medical Society, Springfield, November 1, 1928.

testinal and urinary tract disease. The dilated bronchi wherever located can be visualized and their type and distribution studied. In the presence of dense pleural shadow we now have a means of certain differentiation between bronchiectasis, empyema with bronchial fistula, multiple abscess and pulmonary tuberculosis.

There are several methods of injecting the oil; the most popular one today is that of the supraglottic method. The method we use at the Sanatorium is supraglottic, as done by Pritchard.⁴ We use a 30 cc. syringe and curved cannula, of sufficient length to enable us to drop the oil on the upturned surface of the epiglottis. To avoid irritability of the throat and to prevent the oil from being swallowed, we anesthetize the larynx with cocaine by means of the curved applicator, applying the anesthetic to either side of the larynx just at the base of the tongue.

Other methods used are the so-called transglottic and subglottic. In the transglottic, the cannula is of sufficient length to be placed past the cords. In the subglottic, the injection is through a curved needle attached to a syringe and injected directly into the trachea. The supraglottic, however, is more simple than the others;—time is saved, the patient is subject to less strain and worry, the method does not require the service of a trained specialist, it is more economical from the standpoint of time, expense and labor, it may be employed in the fluoroscopic room, hospital or office with little inconvenience, less anesthesia is required, there is less danger, and no inconvenience is experienced by the patient after the oil has been injected, such as soreness of the throat or tenderness of the skin. Any part of the bronchial tree can be visualized by this method.

As to the dangers of injection of iodized oil, Archibald⁵ has listed a formidable array of potential dangers which, at least as far as nontuberculous cases are concerned, seem to me dangers only in the sense that any slight surgical procedure involves potential dangers. In the injection of oil into the trachea the alleged risk of inciting cough or spreading infection by 40 cc. of a bland oil in a person who daily, perhaps for years, has coughed up from 100 cc. to 1,000 cc. of infected sputum, is, I believe, negligible. Hedblom¹ points out that in bronchiectasis no oil is retained in the lungs. The percentage of complications certainly is small and the method entirely justifiable in all nontuberculous cases in which it is necessary to establish detailed diagnosis. In our opinion, the injection of oil as a means of diagnosis is of no more danger to the patient than the disease itself; in fact, small injections

have a tendency to alleviate symptoms and reduce the amount of sputum.

We do not, however, recommend injection of oil in acute, active tuberculosis, acute infections,—such as occur in early stages of cold and influenza,—very extensive advanced general pulmonary suppuration, particularly when the patient is extremely weak, various circulatory complications,—such as angina pectoris, aneurysm and cardiac decompensation and recent hemoptysis. We do, however, recommend it as a means of diagnosis in cases of chronic cough associated with long standing infection in the upper respiratory tract, particularly sinusitis, cases of cough with purulent expectoration giving a history of previous pneumonia, or inspiration of an organic foreign body, cases of long standing cough with little if any expectoration with absence of frank pulmonary disease, cases of bronchiectasis for the purpose of mapping the diseases area, cases of bronchial fistula, and as a therapeutic agent.



Fig. 1. Case No. 6221. Diagnosed pulmonary tuberculosis, minimal; proved by injection to be bronchiectasis.

REPORT OF CASE

Case No. 6221, W. A., 19 years of age, entered Missouri State Sanatorium August 14, 1928, with history of having had a productive cough since he was two years of age. Family history shows nothing of consequence except that his father has had the same trouble practically all his life but able to work. Past history shows nothing of consequence; had the usual diseases of childhood and, while he has had some colds, he has missed little schooling and has recently been working for a furniture store. Onset of present illness was seventeen years ago. During his life he has had a chronic, productive cough with expectoration in large amounts, dyspnea at times, low grade fever and pleuritic pains; had blood spitting about a month and a half ago which sent him to a doctor. The physician, after examination, rightly recom-

mended his admission to the Missouri State Sanatorium although the physical findings were not characteristic. Physical examination showed a slender youth of fair development, anemic, with clubbed fingers and curved nails, five feet 9 inches in height, weight 116, temperature ranging from 98.6 to 99.2, pulse from 70 to 80. General physical examination showed nothing of interest: Heart, abdomen, teeth, tongue, tonsils, eyes and ears normal, reflexes normal; urine negative, blood Wassermann negative, sputum repeatedly negative to tubercle bacilli but positive to spirochetes and fusiform bacilli. Examination of lungs showed little suggestive of infiltration in upper lung; no lagging of either side. X-ray showed apices to be clear but there was some suggestion of infiltration in both bases. Lipidol injection August 23, 1928, giving us a very definite shadow characteristic of bronchiectasis. Case was discharged from institution September 2, 1928, as nontuberculous.

State Sanatorium.

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THE ETIOLOGY IN SOME TYPES OF CHRONIC URETHRITIS

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A study of urethral infections in the male discloses some very interesting facts. We know that physicians everywhere will welcome any useful information concerning the nature of such infections.

This subject when considered from the standpoint of the urologist alone will not thoroughly establish the etiology in some of the chronic cases, as his specialty centers on the genito-urinary tract. Lately, however, many urologists go further and investigate minutely a possible systemic source of stubborn and persistent urethral infections.

When a patient comes to the general practitioner complaining of urethral discharge it is customary to make smears of the discharge and send them to a responsible laboratory; or the physician may do the staining and microscopic work himself. In either case, if Gram-negative intracellular diplococci are found it has been considered sufficient evidence upon which to make a diagnosis of gonorrhea. The two-glass method has been used to decide whether the infection is anterior or posterior. The patient usually gives a history of having been exposed.

The treatment in these cases, consisting of a

bland diet, urethral irrigations and injections with standard silver salts, is followed by both general practitioner and urologist.

Some of these infections are very persistent. Despite the usual treatment, they increase in severity as the weeks pass. Some improve after four to six weeks, but suddenly a fresh flow of pus pours from the urethra and the patients are again in the same condition as when they first presented themselves for treatment. These changes take place on and off for three, six and nine months. This is the type of case that requires the thorough search for the cause in spite of the history and local findings.

Physicians know the part that the teeth and tonsils play in various joint, muscular and nerve afflictions, but does it occur to them that the teeth and tonsils may have a very definite bearing on some of the stubborn urethral infections?

You may, perhaps, say that this is a further rehashing of the oft-repeated subject of focal infection, and we quite agree with you, but we will show you how we arrived at our conclusions in some cases of persistent urethral discharges.

Some years ago we had a few cases giving the usual history of chronic urethral discharge persisting over a long period. The morning discharge showed laboratory findings of "intracellular diplococci" and Gram-negative intracellular diplococci resembling gonococci. But the urine in these cases was suggestive of an existing pyelitis. We also made smears from the tonsils and sent the slides to a laboratory and the report of "many intracellular diplococci" and "Gram-negative diplococci resembling gonococci" came back to us. The tonsil smears were made from pus expressed from crypts, not from the surface of the tonsils.

The teeth were X-rayed and showed three and four abscesses. The infected teeth were extracted and smears from the pus cavities all contained "many intracellular diplococci." We did not inform the patients at that time about the laboratory findings, but they had the tonsils removed at our request. Almost immediately the urethral discharge disappeared and did not recur.

We followed this method of investigation on cases with stubborn urethral discharges and sent smears from tonsil pus, always expressed from crypts, as well as from the urethral discharge, for laboratory examination. The report from both smears always read "many intracellular diplococci." We are sure that the Gram stain was not used in many cases and that the hurried laboratory technician seeing

the intracellular diplococci made a diagnosis of gonorrhea, but in many cases Gram stains were made on the respective slides.

The same reports came back from smears made after abscessed teeth were extracted. The urethral discharge in these cases cleared very rapidly after the foci were removed.

Resume of a typical case: A man, 26 years of age, had been treated in the usual way for a very painful urethritis diagnosed gonorrhea. The pain and discharge remained the same even after three months. The urine was suggestive of a pyelitis. It was very easy to obtain smears from the teeth and tonsils and patient had his teeth X-rayed at the Veterans' Hospital in St. Louis. The report showed that all teeth were abscessed. The extractions were done at the Veterans' Hospital. The Veterans' Bureau still has the X-ray plates. The tonsils were removed later at the same hospital. After these foci were removed the cystitis and urethritis cleared very rapidly and the man gained twenty pounds. The local discharge contained Gram-negative intracellular diplococci, likewise smears from the tonsils, and the teeth gave the same findings except that the pus was Gram-positive.

Another example of this type of case: This patient gave a history of having been treated periodically for two years and still had a very irritating urethral discharge, especially noticeable after a long walk or a long automobile ride. This local discharge was examined and reported as "Gram-negative intracellular diplococci." The tonsil smears showed many intracellular diplococci which were Gram-negative. The teeth were X-rayed; two were reported as having peri-apical infection but were treated by a dentist. The tonsils were removed at St. Luke's Hospital in St. Louis. The result in this case is considered one of the best we have had during our whole investigation, especially as to rapidity of cure.

We wish to note an important observation in regard to tonsil drainage, i. e., in cases where intracellular diplococci were not found in tonsil smears, no intracellular diplococci were found in the urethral smears. We found intracellular diplococci under teeth after extraction so many times that I requested a well known specialist to make smears after extractions in cases which had abscessed teeth and no history of bladder or urethral trouble. Six smears were made four of which showed intracellular diplococci. Many times in the past the mere presence of intracellular diplococci was erroneously thought to be pathognomonic of gonorrhea.

These observations on the connection of teeth with chronic prostatitis were proven in a case which had been treated for over a year for that condition. When this case came to us for treatment our routine X-ray of teeth showed the patient had sixteen abscessed teeth. After these were extracted it was a simple matter to cure the chronic prostatic trouble. Smears from teeth and prostate showed intracellular diplococci which could

easily have been mistaken for the true Neisserian diplococci.

A few words concerning tonsillectomy. There must be a thorough removal of the tonsils, otherwise the remaining infected portion will continue to drain. Our great difficulty was to have the patient consent to removal of infected tonsil stubs if the tonsil had only been partially removed at an earlier operation.

The question may arise, how do intracellular diplococci happen to be in the tonsil? We believe they are in many infected tonsils. We know that all recognized organisms, such as the staphylococcus and streptococcus, during growth go through a fission stage, that is, they divide and appear as diplococci, and we know that many cases of so-called simple tonsillitis are treated at home by people who will not consult a physician. In home treatment the tonsillar crypts are not thoroughly cleared of bacteria and a chronic condition results with constant drainage down through the kidneys, bladder and finally the urethra. And we also believe that this method of determining the similarity between infections in teeth, tonsils and urethra is a real method of preventing needless tonsil surgery, e. g., we have had patients who were told by throat specialists to have the tonsils removed as the drainage from them was causing a pyelitis and irritating the bladder and urethra. We have also found hemorrhoids present. In these cases the urine showed colon bacilli in abundance while the tonsil infection was only acute with a few scattered pus cells and had nothing to do with a pyelitis, evidently of long standing. We therefore recommend these patients to have the hemorrhoids removed as the kidney drainage comes from an infected colon and not from the tonsils.

CONCLUSIONS

Our conclusions from the study of many cases are, that no specific diagnosis should be made from simply finding intracellular diplococci in various smears; that there are present in the mouth and tonsils, diplococci which closely resemble the true Neisserian diplococci; that they are intracellular and Gram-negative; that the same type of diplococci are present in the urethra in these chronic cases diagnosed as gonorrhea; that the urethral diplococci disappear rapidly and permanently when the distant foci in teeth and tonsils are removed.

Our conclusions that they are not true Neisserian diplococci are based upon the observation that they are not as penetrating in the

urethra and do not tend so readily to urethral stricture.

We all know that other organisms cause pyelitis, cystitis and urethritis, but we feel that the presentation of this short article will be useful in clearing up some of these stubborn cases. We also feel that we have accomplished our purpose if in any small way our observations lead to a better understanding of this very troublesome and much misunderstood affliction.

204 Metropolitan Building.

GREETINGS AND SALUTATIONS*

NORVELLE WALLACE SHARPE, M.D.

ST. LOUIS

You have been informed that, it having been found impossible for Secretary Goodwin to be with you and bring you one of his valuable messages, he requested me to substitute for him. And while it is true that I bear you the Secretary's cordial good wishes, and his earnest injunction to spare no pains that every reputable practitioner within your areas be enrolled each in his respective county society, and furthermore that every effort be made that your meetings be so constructively valuable that no reputable practitioner of this area can afford to miss them; yet I am constrained to admit that I fully recognize the disappointment that is, of necessity, yours this evening.

It is but just to add that you must not expect me to discuss your county society problems in the masterly fashion of our beloved Secretary; nor, on the other hand, can you fairly require of me, at but a few hours notice, to bring you that which would normally be my contribution on such an occasion,—the presentation of some surgical problem.

Possibly, in this dilemma, you will indulgently pardon a few *obiter dicta* more or less intimately correlated to the profession which is ours.

It is a matter of no inconsiderable interest and indeed, so far as I am aware, quite unique that our Guild charter dates back to Hippocrates; and that, though found somewhat tenuous at times, we have exhibited an unbroken continuity from far Hippocrates to this day. The principles of medical ethics of the present are at no point at variance with the fine protocols laid down by our forebears of ancient days; nor are they the mysterious, complicated, occult medieval jargon, fantastic beyond be-

lief, as commonly visualized by many of the laity; very earnestly do I suggest that each of you read them thoughtfully; but until you do, pray bear in mind that they consist of a codification of counsels of procedure and behavior that may be fairly held but the normal rules of conduct of any well bred gentleman in his relation to the colleague, to the patient, and to the public.

It is a substantial misfortune that our medical students are not routinely carefully trained in professional niceties; unfortunate that, prior to this, many of them have not been culturally well bred; and, yet prior to this, that many of them have not been well born. In this regard Medicine resembles all other Guild groups. The quite frequent result of all this is intra-Guild misbehaviorisms, and maladroitness relations with other groups and the community in general. Is it necessary for me to stress that there remains upon each of us the inescapable responsibility, both by precept and by example, to maintain at the highest level our historic Guild ethics.

I regret to be obliged to admit, and I assume that as thoughtful minded men you have both recognized and resented the fact, that there is a fairly widespread tendency to regard the countryside practitioner with but thinly veiled tolerance. In passing I may note that the phrase "the general practitioner," as all-too-frequently employed, is phenomenally eloquent in suggesting the impassable gulf that divides the patient audience from the heights assumed to be occupied by the complacent and oracular speaker.

Even casual study of historic Medicine will abundantly show that this assumption of urban superiority is not well founded. It is beyond peradventure that many of our leaders of both medical thought and action have arisen from men of the countryside. If we may preassume sturdy virility, it will be found that the countryside tends to develop men of highly individualized type, with independent minds, resourceful, aggressive, and dependable in emergencies: this in vivid contrast with the urban environment which tends to herd homogeneity, and where the individual only too often is found to be depending largely upon the support of the shoulder, the back, and the brain of comrades in the compacted urban ranks.

It is this highly desirable individualism that wrought so effectively in changing the sometime American wilderness into one of the greatest World Powers of today. It is entirely possible that in the immediate future the United States faces an era of intensified teamwork of the masses. But if this be so, and if the accent is presently to be laid upon the mass

*An Address before the Howell-Oregon-Texas County Medical Society, February 28, 1929, under the auspices of the Postgraduate Committee of the Missouri State Medical Association.

rather than upon the man, the prophecy is ventured,—though as Amos of old I am neither prophet nor the son of a prophet,—that we shall undoubtedly progressively impoverish our National psyche in direct proportion to the submergence of self-reliant individualism by mechanized mass efficiency. It is needless for me to record my high personal esteem for the countryside practitioner, self-reliant, aggressive, resourceful, courageous. But far removed from such as he is the man with a rustic mind, narrow, shallow, suspicious, jealous, given to small talk and much gossip, non-studious, out of touch with great minds and with great movements; most appropriately such an individual is commonly known as "Doc"; and while this pest may be found scattered in considerable abundance throughout the countryside, urban ranks are by no means free from his noisome presence.

If the statements of Red Cross officers may be believed, a very considerable apathy, indeed a very frank obstructionism, was encountered in quite a few primitive river bottom areas wherein the Red Cross (in alliance with other Federal authorities) was making every effort to stamp out long prevalent malaria, typhoid fever and pallagra, following the recent gigantic Mississippi overflow. This obstructionism was maintained by practitioners (properly called "Doc") who felt that their long standing vested rights and privileges were being ruthlessly disregarded by nonprivileged outsiders. Crude, sordid, hopelessly petty are such yokels, of base clay are they, and irretrievably of the earth earthy. With such no well bred, nor well trained, nor altruistic man, may have fellowship.

You know something of the great men of Medicine, the giants that have towered above the ranks. But I am confident that you will be richly repaid if you will refresh your spirits by again reading Jewett's "A Country Doctor," and MacLaren's "Beside the Bonnie Briar Bush." The sayings and doings and the noble lives of John Leslie,—and of Weelum MacLure in his journeyings in Drumtochty, bear an unchanging message of ennobling cheer; and pray never forget that their sturdiness, their virility, their intrinsic fineness, and their whole-hearted consecration to high endeavor are of the same cloth, in truth are of the very warp and the very woof from which are woven the lives of the greatest and the best of medical men throughout the ages. All such forthstanding men sooner or later become recognized community leaders and at all times are worthy of the fullest respect of all right thinking and thoughtful minded men. Dark indeed the day if this noble breed die out.

I have spoken of some of Nature's noble-men,—countryside practitioners of Medicine,—enshrined in books. You are doubtless aware that there have been two or three somewhat recent portrayals of physicians in current fiction of not specially complimentary character. I shall not consume the precious flying minutes in making rejoinder, yet less in offering defense; for truth lies in the phrase "*qui s'excuse, s'accuse*," and I find myself increasingly in accord with a brilliant colleague who has counselled "it is well to follow the rule never to explain, and never to complain." But mayhap you will indulge me if I venture, from the treasure house of good things, to commend a few writings for your refreshment at the end of some weary day.

Not easy is it, from the rich store, to make choice; but perchance the "Aequanimitas" of Osler, "John McCrae, an essay in Character" by Macphail, the "Biography of Osler" by Cushing, the "Consecratio Medici" of Cushing, will prove a rehabilitative benediction for some quiet evening hour. It will be noted that not one of these books is technical nor of the shop shoppy; but one and all have a distinct cultural value, a definite charm, and the author of each is a physician.

I shall regret it if such be true, but I shall not be overwhelmed, if the foregoing *menu* fails to make telling appeal to each of you, for in truth many men, many minds; under such possible inhibitions I venture to commend the pungent and pragmatic sayings of my brilliant friend and colleague Morris,—who has wrought so helpfully for American surgery,—to be found in his "Doctors vs. Folks," "Microbes and Men," and "A Surgeon's Philosophy."

Strongly do I urge you to own and read books; not of necessity and solely technical books, not the books of the month, not the best sellers, but the best books. One of the best gauges of a man is to be found in the books that he reads; and another excellent gauge is to be found in the books that he does not read.

The cost of good technical books and of good technical periodicals is high and continues to grow yet higher. What is the average man to do? It would seem fairly obvious that a pooling of resources might have great value, hence the library, that is the group library.

It would be grotesque for me to bore you with the multiplied problems incident to creating and maintaining urban libraries. But I embrace the occasion to press for your thoughtful consideration the obvious advantages of the county medical society library. Such a library should be created, maintained, and util-

ized by the members of the county medical society; it should be situate in the most accessible point made available by the county road net. During its days of infancy it might well be housed in a room contiguous to the quarters of some forward minded and cooperative practitioner. If each county society member will budget his annual expenditures for medical books and journals, will cut this in half, and then devote one of these halves to the county medical library, a fair start will be secured from the very beginning. The selection of which books and which journals to purchase and maintain year by year will require discriminating judgment; indeed the whole venture, in each smallest detail, will require discriminating judgment. Do not fatuously delude yourselves,—the task will not be an easy one, but it will prove a noble venture well worth your serious endeavor. You will individually save money, you will collectively have access to a more varied and ample literature, you will be abundantly justified in frequently spending two or three hours with these segregated books and journals, you will be delightfully refreshed thereby, and you will be better practitioners of both the science and the art of Medicine. Reasonable effort and reasonable expenditure should be made to render the library room congenial, attractive, and as different as possible from the rooms of the sick where you so greatly labor. Clean, light, airy, properly warmed, shades at windows, good linoleum on the floor, an abundance of shelving, ample table facilities, several *exceedingly comfortable restful chairs*, a desk with a supply of suitably printed stationery, pads of scratch paper, good artificial light, telephone. Until a librarian is available the door should be kept locked and each member supplied with a key. Proper provision must be made for cleanliness and orderliness; so soon as possible a card index should be developed. This county library room should be fully as inviting and restful as the best medical quarters within the county; preferably much more so. I indulge myself in the firm belief, if there were such a county medical library in each of the one hundred and fifteen counties of the fair Commonwealth of Missouri, and if each such library were steadily maintained on an active status and constantly used by county society members, that it would do more than any other one thing to maintain Missouri Medicine on a creditable basis, and quite as much as any other one thing to create and weld Guild solidarity.

But pending the development of three such medical libraries in this particular area, I invite your attention to the fact that we have in

St. Louis an excellent medical library of both books and journals, under the supervision of our competent librarian, and the *matériel* made readily accessible by a satisfactory card index system. Why not share this with us? Our library is housed in our Medical Society building. Why not time your visits to town so that you will participate in our society meetings on Tuesday evenings, and on such occasions likewise refresh your minds by an abundant browsing in our library.

And while on this topic may I not be permitted to remind you that we also have two strong medical schools, several excellent hospitals, abundant clinical and laboratory facilities; why should you not use them both freely and frequently. If we chance to have anything worth-while in St. Louis that you need for your enjoyment, or profit, or growth in professional grace, pray share it with us. You will be enriched thereby and we shall rejoice in the intensified fellowship of our colleagues and friends. The excellence of all such goodly things is largely dependent upon their utility. In truth, if you fail to share with us and thus multiply their usefulness, you will to precisely that extent hinder us in compelling them to yield their *maximum bonum*, and to precisely that extent hasten the day when they shall properly be held to be but Nehushtan,—worthy of speedy destruction. I may add that I am informed by Dr. Arthur E. Bostwick, librarian of our great Public Library system, that though the present procedure forbids forwarding books to out-of-town individuals, yet that if you wish to use the library and its ample facilities, when in town, you will be most welcome.

I have spoken briefly of the noble men and the lofty traditions of Medicine; I may be pardoned, I trust, if I recall to your minds the great progress made by modern Medicine in breaking the power of the world plagues that formerly ruthlessly ravaged the nations. I know no other profession, nor guild, nor craft, nor trade, that consistently makes effort to render needless its historic and inherent activities, and as a consequence progressively curtail its customary income. And yet this is precisely what Medicine has done in her every effort toward disease prevention and disease suppression. It is unfortunate, but wholly characteristic, that the public has forgotten, or remains callously oblivious of the days when hideously pock-scarred faces were everywhere found, and when smallpox slew its thousands; oblivious likewise to a multiplied gravedom fed by the riotous onslaughts of cholera, yellow fever, malaria, bubonic plague, leprosy, and tuberculosis.

At present, typhus and typhoid are almost wholly restricted to areas and peoples that are indolently indifferent to filthy contamination of food, person, and environment. Diphtheria is practically controllable, scarlet fever increasingly so; malaria-scourged areas are being constantly restricted. Progressive Medicine has achieved great victories and much is hoped for an advancing conquest of pellagra, tuberculosis, sleeping sickness; and indeed there seems reason to feel that some additional control of venereal diseases may also be gained. You doubtless know that dread rabies and tetanus are fairly well in hand, and the current antitoxins promise yeomen aid in controlling erysipelas.

Recently at the St. Louis Medical Society we had the remarkable Cinti films showing tissue growth, and also the destructive action of radium on malignant cells. It is conservatively believed that this extraordinary English craftsmanship will prove definitely stimulative for continued advance against malignancies, and the further effective exhibition of radium in this field. Assuredly you know of the intensive study being made of malignancies;—I regret that I am unable to bring you facts regarding an indubitable cure. Indeed, in the light of our present knowledge and technique, I deprecate the use of the word "*cure*."

The occasion is embraced yet again to emphasize that only too often is a case referred to the surgeon for operation, so far and so hopelessly advanced that any radical surgical attack must be fairly held to be purely fantastic, and at best but clever surgical gymnastics. The responsibility of surgical failure in such a case rests not on the surgeon nor on surgery but fairly, squarely, and unequivocally upon the shoulders of the physician who delayed and procrastinated in handing over the case when it was in its early and operable period.

I take it that the internist will be quite as much interested as the surgeon in the recent epoch making work of Kamm and his associates, who have isolated two hormones, known as alpha and beta, from the posterior lobe of the pituitary gland. The alpha is to be distributed under the name pitocin and is an oxytocic; the beta is to be known as pitressin and is a blood pressure raiser. Kamm has also shown us that there are physiologic "wets" and physiologic "drys." This work promises interesting advances not only in surgery but also in the dehydration diseases of infancy, diabetes insipidus, extensive burns, cholera, shock, and other tissue thirsty conditions.

Though sorely tempted, I follow the counsel of wisdom in not digging deeply into the

numerous and notable achievements of our colleagues; and the counsel of prudence in not trespassing unduly upon your forbearance and patience. I venture to assume that, to a large extent, I but rehearse to you well known tales. But suffer me to mention that the Graham orientation technic of gallbladder phenomena continues increasingly valuable; that our colleagues in radiology are rendering progressively useful diagnostic and therapeutic service; that the relatively unexplored field of human hypersensitivity is yielding extremely interesting and productive results; and, finally, that both cerebrospinal and intrathoracic surgery are steadily stabilizing their ever widening fields of usefulness.

It should greatly hearten you that in the very forefront of the nations of the world stand the yeoman accomplishments of the Army and Navy of the United States during the World War period. Furthermore, you should know, and be justly proud of the fact, that the enormous increase in prestige and respect accorded American surgery in the Europe of today has been gained almost wholly by the demonstrated achievements of American surgeons and American surgery in the War devastated areas of Europe.

It is the popular indoor sport and the pleasant out-of-doors exercise of the Radicals, the Reds, the Pinks, and the Pacifists to damn our Army and our Navy,—together with all other stabilized governmental agencies of law and order activating under what they are pleased to call the Capitalistic System.

I am unalterably opposed to the spineless and highly effeminate prevailing policy of advocating the maintenance of our Army and of our Navy on account of the varied and multiplied altruistic peace time accomplishments wrought by them. The forthstanding fact remains that all such matters, be they never so good, are wholly ancillary to their main mission, which chances to be also their sole reason for existence, that is, they are the armed forces of the country, authorized by the Constitution, and maintained by the Congress, for the protection of the rights and the peace and the welfare of the Commonwealth. If the Army and the Navy cannot maintain the validity of their existence upon this specific ground, and if we no longer require them for this specific purpose, they should be promptly and permanently disbanded.

Without minimizing the dogmatic challenge of the foregoing protocol in the slightest degree it is but just, on the other hand, that we fully recognize their constructive achievements in associated fields of endeavor. It is wholly in this spirit of acknowledgment that mention

has been thus made of the fine results secured by Army and Navy surgeons. By the most natural progress of thought am I constrained to inform you that an enormous proportion of the fine results achieved by the Medical Departments of our Army and of our Navy during the World War was secured by the active functionation of the members of the Medical Officers of the respective Reserve Corps of these Services.

It is surely superfluous that I inform you that in these Reserve Corps then were, and now are, some of the most brilliant members of American medicine and American surgery. In a very particular sense these officers constitute a *corps d'elite*, professionally accomplished and patriotically notable.

I urge you not to forget that for the first time in American history we now have a National Defense Policy,—thoughtful, conservative, well balanced, constructive, far-reaching in wholesome possibilities. As you doubtless know, the Army of the United States is now built of three components,—the Regular Establishment, the National Guard, the Organized Reserves. This is sequentially the order in which they will be placed in combat when the country is confronted with a major emergency. Associated with the foregoing are the Reserve Officers Training Corps, found in various universities and colleges, and the Citizens Military Training Camps which annually train such of our youth that evidence adequate mental, physical, and patriotic equipment. From these, and through these, agencies replacements for the three major components will be secured; a selective draft, nation wide, will provide the rank and file. Of the various arms and services found within the Reserve Corps there is to be noted the exceedingly interesting Medical Section, which should make specific appeal to the colleagues.

I desire not only to stress the importance, but also to drive home the imperative message, that it is the patriotic duty of every patriotic citizen who can exhibit the requisite mental, physical and professional qualities to enroll in the Reserve Corps; to take full advantage of the training facilities that have been made available, and thus in peace time prepare himself for combat service when war is upon us; and furthermore daily to evidence an intelligent and helpful and cooperative attitude toward the excellent, reasonable, wholesome, and proper government measures promulgated for the National Defense.

To do otherwise,—to be laggard, to be indifferent, to be indolent, to be oblivious to this basic duty of the citizen toward the Common-

wealth,—automatically spells him parasite rather than man.

What your community thinks of you is of considerable moment; how it evaluates you is of considerable importance; but weighed in the balance, the rigid, uncompromising, inflexible balance of how you may fairly and justly and honorably evaluate yourself,—the opinion of your community is of negligible significance.

It is a matter of no inconsiderable censure, and a matter of no unmomentous regret if there be a single physician in the broad and fair Commonwealth of Missouri that is derelict in this basic duty of honorable and loyal citizenship.

The ancient dictum *noblesse oblige* yet remains compelling, and if Medicine is to maintain leadership among major community assets, and is to remain loyal to high and honorable traditions, and is to follow faithfully in the footprints of her great sons of former days she must exemplify loyalty and fealty during these days of prevailing, and obtrusive, and disintegrating lawlessness.

During these closing hours of this inclement day come messages from overseas of the failing strength of the great Marshal Foch. Compelling lessons may be gathered from the careful study of the lives of great men. The flying moments forbid any extended analysis of the life of this justly famed soldier. Suffice it that I quote a phrase credited to him in 1914 when the tide of battle was pressing resistlessly upon him, and when it seemed that the very shears of Atropos the inevitable and the relentless were closing upon him and his command: "My right is crushed, my left is in retreat, I am attacking with my center." There indeed speaks the indomitable spirit of a Man.

Far removed are we this night from France and the sick bed of this great soldier but I suggest that you take this sentence home with you, meditate upon it, perchance adopt it as a combat policy when the pressure of time and circumstance and things overwhelms, and disaster brazenly fronts you.

I would have you remember that the problems of a county are not basically different from the problems of a metropolis; the problems of a practitioner of the fair and gracious countryside are not basically different from the problems of a practitioner of the thronging streets. If at times you need heartening, alike so do we; if on occasion you need fellowship, assuredly so do we; if it be wholesome for us to raise our eyes betimes to the distant hills and gather fresh courage and an ennobled endurance from the energizing vision of snow-

clad Delectable Mountain peaks scintillant in the blaze of a dominant sun,—surely such a vision, and surely such a fructifying experience are likewise meet for you. If on this occasion it has been granted me to bring Greetings and Salutations to colleagues in the ancient and ecumenical Guild of Medicine I hold myself privileged; together have we clarified our vision, together refreshed our minds.

I have urged that every competent medical man enroll in the Medical Reserve Corps of either the Army or the Navy. I would not have you feel that I am oblivious to the exigent fact that in a very vital sense we are each one of us, at all times, soldiers of historic combat forces engaged in active and unrelenting warfare against the physical and the mental ailments of man. That to a very conspicuous extent the physical and mental redemption of man rests upon us of Medicine. Each forward stride measured, each victory achieved be it never so small, brings us nearer to the objective of our efforts.

For us, like the soldier in arms, will finally come the cessation of strife, the rest of the finished day; over us and beyond us the combat will press on and on, but for us all the glory of the world shall pass, absorbed in the darkness the peace, and the quiet of our oncoming night.

Very greatly do I desire that you catch the vision that our daily walk, our daily combats, our daily victories, our daily defeats, and our day of passing from this world's glory are inextricably linked with our forebears of ancient days. Readily may we conceive the brooding solicitude with which they watch our daily progress, and their intense anxiety in noting how we carry forward plans dear to them, but yielded to our hands for furtherance and completion.

You are doubtless all familiar with the lines "In Flanders' Fields," exquisitely wrought by our colleague, Lieut. Col. John McCrae, of the Canadian Expeditionary Forces; familiar also his tragic death, in line of duty, but five scant days after orders had been received appointing him Consulting Physician to the First Army (British).

I wish to leave with you, as a gracious dormative, yet other lines of his, equally exquisite, equally poignant in appeal; they are doubtless the last that he wrote, appeared in *The Spectator* late in 1917 under the title "The Anxious Dead," and must be construed as a *postscriptum* to "In Flanders' Fields" published in *Punch*, December 8, 1915. A vital message hold they for us in our historic relation to our honored Guild colleagues, those mighty warriors whose noble exodus has been

accomplished;—pray ponder them thoughtfully:

O Guns, fall silent till the dead men hear
Above their heads the legions pressing on:
(These fought their fight in time of bitter fear,
And died not knowing how the day had gone).

O flashing muzzles, pause, and let them see
The coming dawn that streaks the sky afar;
Then let your mighty chorus witness be
To them, and Caesar, that we still make war.

Tell them, O Guns, that we have heard their call,
That we have sworn, and will not turn aside,
That we will onward till we win or fall,
That we will keep the faith for which they died.

Bid them be patient, and some day, anon,
They shall feel earth enwrap in silence deep;
Shall greet, in wonderment, the quiet dawn,
And in content may turn them to their sleep.

3520 Lucas Avenue.

RADIOLOGICAL CONTRIBUTIONS TO THE ADVANCEMENT OF SCIENCE*

L. R. SANTE, M.D.

ST. LOUIS

We as physicians are inclined to become very narrow in our specialty. The tremendous advances made in the field of medicine during the past 25 years have a tendency to produce in us a sense of satisfaction with our own accomplishments and to blind us to the advancements which have been made in other fields.

It will, I think, be generally accepted that radiology has played a greater part in the advancement of medicine during this period than any other single agent. Immediately following its discovery by Roentgen in 1895, the X-ray was recognized as an agent peculiarly adapted to medical diagnosis. Its continuous application for this purpose throughout the years has demonstrated conclusively the correctness of this assumption. You are all familiar with the wide range of applicability of radiology in the field of medicine; it finds its way into every specialty and collaborates with every branch of medical practice.

It is not my purpose to dwell upon this phase of radiology, but rather to point out some other phases of the subject with which you may be less familiar. During the period immediately following the discovery of the X-ray it was used chiefly by physicians as an aid to diagnosis; with the constant improvement of apparatus and the development of more

* Read before the St. Louis City Hospital Alumni Association, November 22, 1928.

penetrating rays a wider range of usefulness in industry has continually developed. This method of examination is advantageous in that it does not injure the substance examined and yet affords the only means of demonstrating concealed defect in material or detecting in a machine the accuracy of assembly of component parts hidden from view. Among the industrial uses which have been found for X-ray are the following:

1. Examination of metal castings for cracks, blow-holes, and metallic segregations, defects which occur during casting. Examination of axles and bearings of locomotives and high-priced automobiles and other machinery.

2. Examination of metal welds for uniformity and strength. Non-fusion of the different metallic substances can be readily detected even though on the surface the weld may appear uniform and smooth. Examination by X-ray will also detect any variation in density between the welding material and steel. (Fig. 1.)



Fig 1. Radiography has found an extensive field in industry in the examination of metal welds and castings for insecure fusion of the metals, cracks, blow holes and other defects which occur during the process. Photograph and radiograph of a weld in a steel aeroplane casting. (V. E. Pullin and W. J. Wiltshire.)

3. The internal diameter of metal pipes can be accurately measured. By filling the pipe with mercury a clear-cut image will be obtained from which the actual thickness can be measured.

4. To show the internal construction and arrangement of certain machinery and apparatus without deranging its structure. (Fig. 2.)

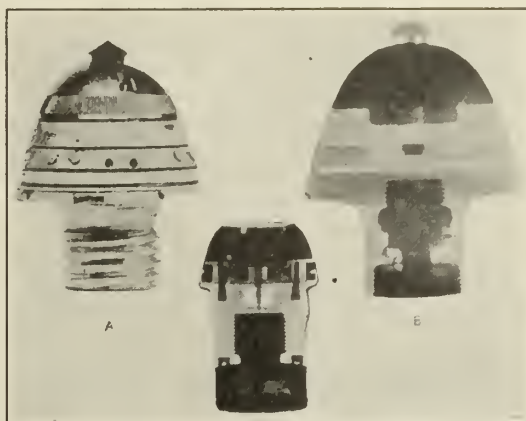


Fig. 2. Photograph and radiograph of steel fuses for shells. A is a photograph, B is a radiograph of the same fuse. (V. E. Pullin and W. J. Wiltshire.)

5. In England X-ray examination has been extensively used to detect the percentage of foreign material in coal, and on the basis of this examination a system of grading has been established.

6. X-rays can be used for the examination of certain ores to determine the relative mineral contents.

7. For the examination of concealed electric wiring in walls and special apparatus.

8. For detection of faults in high tension electrical insulators.

9. It finds a very useful purpose in the examination of wood used in the construction of airplanes and other pieces of apparatus, for worm-holes, cracks, strains and imperfect gluing.

10. A rather modern application of the X-ray examination is seen in its use to determine symmetry of the elastic rubber centers of golf balls. (Fig. 3.) They cannot be tested in any other way.

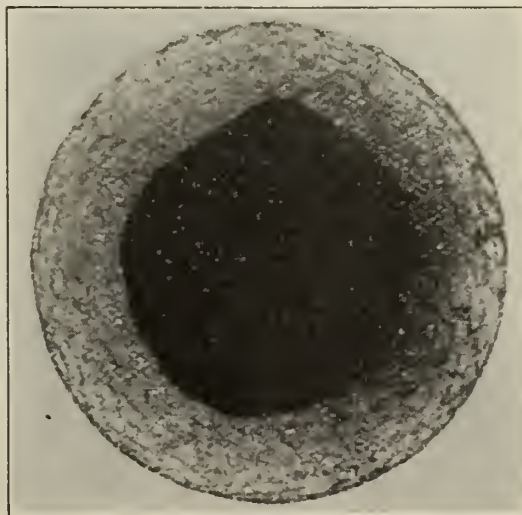


Fig. 3. Radiograph of a golf ball showing asymmetrical elastic center. (Kave.)

11. Tire manufacturers are making extensive use of the ray for determining the state of adhesion between the rubber layers and their underlying fabric.

12. Examination of glass to show its relative metallic contents; glass is opaque in direct proportion to the amount of metal which it contains.

13. In the examination of fire-clay pots in which optical glass is melted. It has been found that any metal particles contained in the fire-clay will fuse with the molten glass ruining it for optical purposes and destroying the crucible. Detection of such metallic deposit in the clay and its elimination before the crucibles are made, works to a double advantage.

14. Rapid production of coloring in glass from exposure to X-ray (depending upon the amount and character of metal dissolved in the glass) giving antique appearances.

15. For the recognition of genuine gems. (A pure diamond for instance is radio-transparent whereas brilliants produced as imitation diamonds have a high metallic content and are opaque.)

16. Examination of packages for contraband. (Articles secreted in bales of cotton, hay and other merchandise.)

17. To determine uniform filling cartridges, grenades and other projectiles. (Fig. 4.)

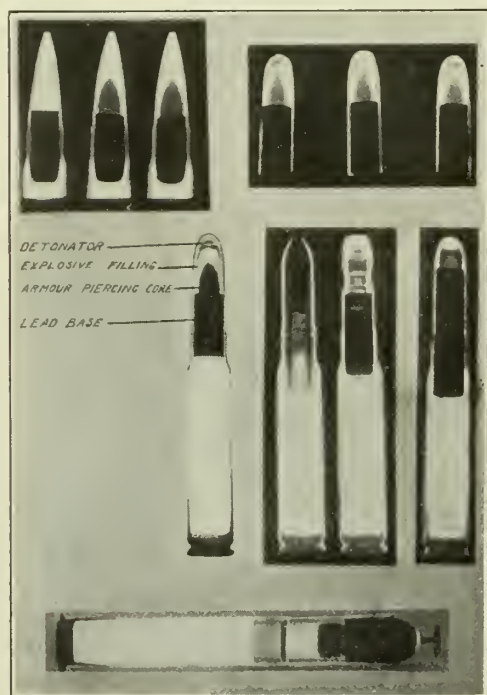


Fig. 4. Radiographs of various types of foreign explosive and armour piercing ammunition. (V. E. Pullin and W. J. Wiltshire.)

18. It is used to kill weevil in tobacco and grain, to preserve raisins, etc.

19. Used in agriculture to promote union of two strains in the development of a new species without passing through many generations. Its use in this regard is not fully understood, but it may be due to disturbance in the normal chromosome division in the cells, which is in line with Strangeway's observations of the action of X-rays on chick-cells in culture.

20. Some of the more novel uses of X-ray may be mentioned: For fitting of shoes; to sort fresh from bad eggs; for examination of fossils and mummies without their destruction; the detection of opaque pigments in paintings of the old masters; for the detection of the finer structures of flowers without their destruction; to produce magnified images of fine opaque structures, such as the legs of tiny lizards (the use of X-ray as a microscope), *radiomicroscopy*. The adaptation of radiography to industry, was only a natural development. (Fig. 5.)



Fig. 5. Microradiograph (magnified 17 times) of the legs of a tiny lizard by Pierre Goby. (Kaye.)

Let us consider some of the more fundamental conceptions which have been the direct outgrowth of the discovery of X-rays. The introduction of this hitherto unknown agent to the scientific world at once produced a new trend of thought among scientists. The possibility of spontaneous emission of similar radiation at once presented itself and scarcely more than a year elapsed before Becquerel announced

the discovery of radioactivity in an element in pitchblende which he called uranium. This was soon followed by the discovery of radium by M. and Mme. Curie; of polonium, actinium, thorium, mesothorium and a long list of similar radioactive elements. So it was that the discovery of spontaneous radioactivity of elements was a direct outgrowth from the discovery of X-rays.

Of far greater importance than the discovery of X-rays, or the principle of radioactivity, is the influence which these discoveries had upon the conceptions of the fundamental construction of matter. Prior to the period of radioactivity it was assumed that all substances were divided into molecules which in turn were subdivided into smaller particles called atoms. It was further believed that arrangement and combination of atoms in the molecule was what produced the difference in chemical properties of different substances. While an atom was considered to be the smallest subdivision of matter it was thought to be largely theoretical since it could not exist except in combination with other atoms. A molecule was considered to be the smallest particle which could exist and maintain its chemical properties. The advent of radioactivity has produced a new conception of the construction of matter. It is now believed that an atom itself is very elaborately constructed; that essentially it consists of a central nucleus or proton, bearing a predominating positive charge, with numerous small negatively charged bodies called electrons, revolving about it in orbits very similar to the revolution of the earth and other planets about the sun in the solar system. The atoms of different substances vary from the simplest arrangement, seen in the helium atom, to the most complex design of secondary orbits, seen in the radium atom. It has been determined, for instance, that the mass of an atom is dependent upon the number of preponderating positive charges in the nucleus, and that the atomic number in the Mendeléeff scale of elements equals the number of positive charges in excess in the nucleus. The number and arrangement of the negatively charged electrons in the outer orbits determine the chemical properties of different compounds of the element. If this be true, it was argued, the addition of one or more positive charges to the nucleus of an atom should result in the conversion of one element into another, with a possibility of predicting the properties of the new element. That this is not merely a theoretical possibility has been amply proven by recent work in the transmutation of elements. Choosing mercury as being next in atomic weight to gold, it has been possible by com-

plex mechanical and chemical methods to change it into the more precious metal; thus we see ourselves reverting to the old days of alchemy. While the expense of producing gold by this method far exceeds its actual value at the present time, who can say that the future may not see a complete upset of our present monetary system.

The positive charge of the nucleus then can be changed by the introduction or extraction of electrons, but only with great difficulty; the negatively charged electrons in the outer orbits may be more readily changed in number and arrangement. These electrons then become very important structures. If, by some artificial means, such as chemical action in an electric battery, we are able to remove electrons from one atom and stack them up in excess on another, we will produce an unstable condition in both atoms. The one by reason of its excess of negative charges assumes a negative charge itself; the other on account of its deficiency of negative charges assumes a positive charge, owing to the predominating positive charge of the nucleus. If any two such unstable atoms are brought into close contact, or if a conducting material furnishes a pathway, the electrons which are in excess on the negative atom will flow over to take up the deficient places on the positive charged atom, producing an electric current. An electric current then may be defined as electrons in motion, and it always takes place from the negative to the positive. The reason for attraction of unlike charges and repulsion of like charges of electricity is quite apparent from this explanation. Now, in a Coolidge tube with heating of the light filament, the electrons composing its atomic structure become less firmly attached to their central positively charged nuclei. In this state all that they require to cause complete separation from their parent atoms is some outside influence. This is furnished in the form of a high tension negative electric current. Since like charges repel, the negatively charged electrons are repelled from the filament; since unlike charges attract, they are attracted to the positive electrode or target which they approach with great speed. In the short distance of little more than one inch they attain a speed equivalent to from one-half to one-third the speed of light. At their impact with the target they impart their energy to the target, causing it to vibrate and give off radiations in the ether in all directions from the point of impact. These radiations we call X-rays. So we see that the electron plays a role in the production of X-rays.

The rays thus produced are used in the

treatment of neoplastic disease. They strike the tissue cells and eliminate from their atomic structure electrons similar in all respects to the electrons which gave rise to them. These liberated electrons fly off in all directions into the surrounding tissues and themselves impinge upon other cells, producing further mechanical disruption. It is believed at the present time that this is the explanation of the biological action of X-rays on tumor tissue. The X-rays themselves act only as a means of liberating the electron or corpuscular rays deep in tumor tissue. Beta rays of radium have been shown to have the same physical structure and the same biological action.

It would seem that these electrons play an important part not only in the structure of matter but also in the biological effect of X-rays on living tissue. The development of a large source of electrons free in nature would probably present many possibilities for physical and biological research. Such a source of electrons has been developed by Dr. Coolidge, of the General Electric Company, in a new cathode ray tube. (Fig. 6.) This tube applies the

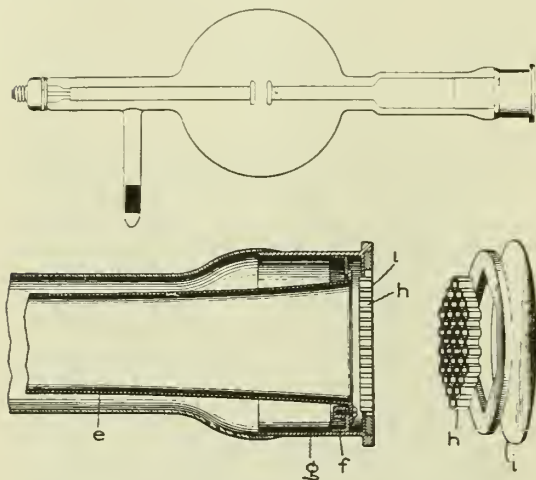


Fig. 6. Coolidge cathode ray tube for 300,000. A. This tube is of essentially the same construction as an ordinary Coolidge X-ray tube, with the exception that in place of a target it has for its anode a hollow cylinder. Electrons liberated from the filament are driven rapidly toward the anode (at a velocity equal to $1/2$ to $1/3$ the speed of light); in place of encountering an obstruction they are projected through the hollow cylinder. B. Detailed view of the anode end of the tube. Electrons traveling at a high rate of speed, pass through the fine nickel membrane ($1/10$ mm. thick) and form a sphere of radiation in the atmosphere 3 ft. in diameter. (W. D. Coolidge.)

principle of a Lenard tube and indeed it has been described by Coolidge himself as a "glorified Lenard tube." The original Lenard tube consisted of a discharge vacuum tube with an aluminum window sealed in its wall, permitting the passage of electrons through the tube into the surrounding atmosphere. The Coolidge electron tube consists essentially of

the same construction as an X-ray tube, having two electrodes, one a lighted filament the other a hollow cylinder in place of a target. The hollow cylinder is covered at the outer end by a thin sheet of nickel foil or "resistal" one-tenth mm. in thickness, supported by a honey-combed metal grid, which maintains the sheet nickel in place and preserves the vacuum. Electrons emitted from the filament are projected at one-half to one-third the speed of light toward the anode; in place of meeting the resistance of a target as in an X-ray tube, they are projected through the cylinder and escape through the nickel foil into the surrounding atmosphere. The writer had the good fortune to witness a demonstration of this tube. When actuated by 350,000 volts a bluish sphere of radiation appears at the anode end of the tube, fully three feet in diameter. Various substances when subjected to the influence of these electrons produced different reactions. For instance, calcite crystals, fluoresce with a red-dish-orange color, resembling red hot coals, and retain their fluorescence for several hours. Lime and various barium compounds fluoresce blue and green. In granite each substance going to form the heterogeneous mixture fluoresces with its characteristic color. Cadmium tungstate, the material used in production of fluoroscopic X-ray screens, fluoresces with a brilliant white light as long as it is under the direct influence of the rays; as soon as it is removed however fluorescence at once stops. If previous to subjecting a cadmium tungstate screen to the rays it is cooled to the temperature of liquid air, it will continue to fluoresce even after it is removed from the influence of the rays, until it has warmed up to room temperature. If at any stage during the warming process it is again plunged into liquid air fluorescence is checked at once and can be held in abeyance even for months. If at this time the screen is again allowed to warm up to room temperature, spontaneous fluorescence again occurs at the point where it left off before and continues until the screen becomes warmed up to room temperature.

If rock salt, composed of many impurities, is subjected to these rays it turns coal black. All the chemical properties of the black portion are maintained similar to ordinary rock salt with the exception of the color. If chemically pure sodium chlorid is subjected to the action of the rays it turns a brilliant orange color; potassium chlorid turns a beautiful Alice blue; in both instances these colors have remained fixed even after exposure to ultraviolet rays for sufficient time to indicate many years of sunlight exposure. When these rays are projected into a glass cylinder contain-

ing acetylene gas a puff or explosion occurs, the cylinder becomes filled with smoke, which settles down to a brownish white powder. The substance thus produced represents a new compound, never before known. It is insoluble in acid or alkali and has up to the present defied chemical analysis. If within a cylinder of acetylene a piece of polished copper or brass is inserted prior to the exposure to the ray no smoke or precipitate is formed but an amorphous-like transparent substance settles like a coat of varnish over the surface of the metal; this cannot be dissolved by acid or alkali and can only be removed with a file. So it is possible that the day may come when automobiles will be varnished by the aid of cathode rays. This would seem to be a very effective way of protecting armour.

The biological effects of these rays are similar to those produced by beta radium rays. If the skin of a rabbit is exposed for one-tenth of a second to this ray the area exposed epilates within a few days and the new growth of hair which occurs always shows a gray color. If a longer exposure is used, one second for instance, ulceration results which is sluggish and does not heal readily, resembling in all respects X-ray or radium dermatitis. If field corn is exposed for 10 ma. seconds at a distance of two inches it will not germinate; seeds exposed for one ma. second germinate but show evidence of deformity; .1 ma. second exposure produces some stunting of the growth, and .01 ma. second produces little if any demonstrable effect.

Exposure of yeast to this type of radiation results in raising the vitamin D content, which increases its antirachitic properties.

It seems hardly probable that these rays will ever find a very extensive use in medicine since their action is so superficial and the field of application of such a caustic agent is so limited.

Recently, a still more extensive field has been found for the use of X-rays. For many years following the discovery of X-rays it was thought that they could not be diffracted. Recently, however, it has been demonstrated that X-rays can be diffracted and an X-ray spectrum produced similar in many respects to the light spectrum. Professor Laue, of Munich, in 1912 conceived the notion that the regular grouping of atoms in a crystal which modern crystallography affirms might act as a grating infinitely fine in structure to produce interference effects with the rays in a way analogous to that in which diffraction gratings deal with light waves. Following out this idea Laue and Bragg were able to produce symmetrical patterns as the result of diffraction of an X-ray beam from the faces of crystals placed in their

paths. (Fig. 7.) As a result of this study it has been developed that from the patterns pro-

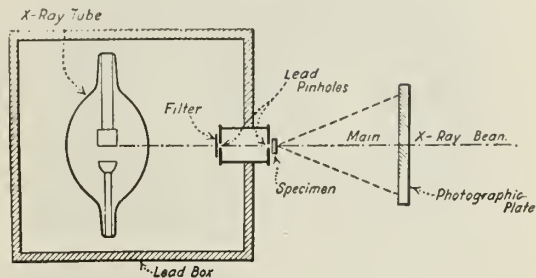


Fig. 7. Apparatus for producing X-ray diffraction patterns. A small pencil of ray projected through a pin hole is passed through the specimen and the diffraction pattern is recorded upon a photographic film or plate. (G. L. Clark.)

duced a conception of the arrangement of the planes of the crystalline structure can be determined. Perfect crystalline structure is indicated by a symmetrical pattern of dots. (Fig. 8.) It has been observed for instance that

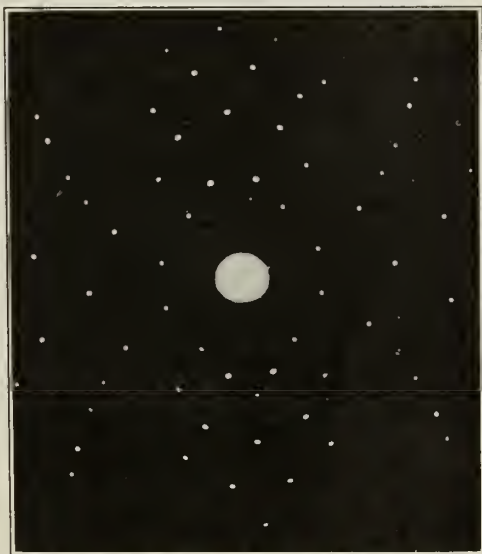


Fig. 8. Typical pattern for a single crystal of iron. (G. L. Clark.)

hardness of steel depends upon the arrangement of its crystalline structure. Irregular crystallization of steel when detected can be taken as an evidence of internal strain. Perfectly annealed steel shows an irregular structure without rings or symmetrical pattern. (Fig. 9.) The X-ray pattern differs with each process to which the metal is subjected; if drawn out into wire it shows the typical rings of a fiber pattern; if cast in a mold it shows the definite dots indicating a crystalline structure; if annealed it has a heterogeneous appearance. In this way it is possible to determine the last process to which a piece of metal has been subjected. It is possible to detect strain in steel, to determine which process is best suited to the development of hardness, strength,



Fig. 9. Diffraction patterns and photomicrographs of cast steel illustrating value of X-ray method in controlling heat treatment. (G. L. Clark.)

or ductility of a metal.

By this method it is possible to examine into the character of the minute structure of certain substances. Rubber, for instance, in its unstretched form, produces only concentric rings, characteristic of an amorphous substance; when stretched, however, it takes on

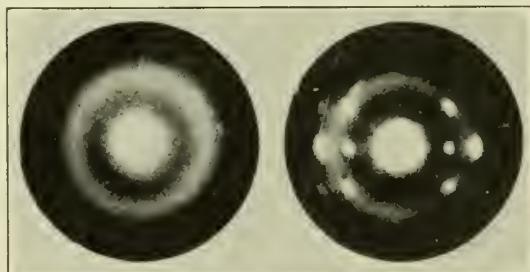


Fig. 10. Pattern for unstretched (amorphous) rubber (left), and for stretched (crystal fiber) rubber (right). (G. L. Clark.)

a crystalline form. (Fig. 10.) It is noteworthy that all types of synthetic rubber yet

produced have failed to develop these crystalline characteristics on stretching.

Perfect fibers of asbestos, silk, cobwebs, etc., produce circular patterns with long hyperbolic striations. Aluminum and other metals when drawn out into wire produce similar patterns. (Fig. 11.)



Fig. 11. Typical fiber patterns, asbestos (left) and cold drawn aluminum wire, and silk (right). (G. L. Clark.)

Recently this method has been applied to the investigation of colloidal solutions, amorphous materials and gels, the patterns produced being merely broad concentric rings. It has been determined that these rings indicate by their width and spacing the distance of the nearest approach of the molecular arrangement in the substance. With the application of this method to body tissues it has been found that muscle tissue, cartilage, etc., produce homogeneous rings similar to any amorphous substance. Muscle tissue when stretched to the point of rupture however does not show the interference spots seen in rubber. Strangely enough this method has demonstrated that certain substances which appear to have crystalline structure are in reality not crystal at all. Hemoglobin, for instance, does not show crystalline structure patterns and must be considered as pseudocrystalline.

Here we have a new method for physiological and pathological investigation of body tissues, which may be applied to the arrangement of the ultramicroscopic structure of the body. Two specimens of steel for instance which have microscopic pictures so similar that they cannot be differentiated show strikingly different structures, when examined by the X-ray pattern. May not two body tissues having strikingly similar microscopic appearance present fundamentally different molecular arrangement when examined by X-ray patterns? Cancer cells, for instance, cannot be distinguished from normal cell growth except by their behavior, but may they not have some essential difference which can be revealed by this method? The cells of two cancers may have very similar microscopic appearance, yet one yields readily to the effects of radiation and the other is resistant to it. Is it not possible that this method of inquiry into the minute molecular construction of the cell may indicate this difference?

PARESIS: SYMPTOMATOLOGY, DIAGNOSIS, AND TREATMENT BY INOCULATION OF MALARIAL PLASMODIUM

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ST. JOSEPH, MO.

As a prelude, I wish to be understood as making no claim to originality looking to diagnosis, research, discovery or refinement of the treatment of paresis; nor do I put forth the claim that the present method of treatment by the inoculation of malarial plasmodium will effect a cure of this widespread and ever increasing malady. That the treatment does exercise a mollifying influence on certain types of paresis, including particularly cerebrospinal syphilis in the early stages, is now beyond cavil.

The present method of both diagnosis and treatment is not the result of one man effort or of any coterie of individuals: we are where we are as the result of evolution.

Hippocrates was probably the first physician who recognized the beneficial effect of malarial plasmodium in paresis—not given intravenously and subcutaneously as we do today, but through inoculation by the mosquito bite itself. And so it was that he made mention of it in his writings. But it is to J. Wagner-Jauregg, of Vienna, that we are indebted for bringing into prominence the importance of using malarial plasmodium as an aid in the treatment of paresis and kindred affections, which the keen observer and great physician, Hippocrates, had discovered 400 years B. C. In 1917 Wagner-Jauregg inoculated nine cases of general paralysis with malaria and six of them were benefited. Three were at work four years afterwards and showed no signs of the disease. This method of treatment has been taken up with great enthusiasm, and seems to promise better results than any other method of treatment so far introduced.

The diagnosis of paresis at the present time is a comparatively easy matter, provided one is well equipped for the undertaking and understands his business. To be well equipped means, in the first place, that one should have a liking for the work. To be delinquent in this respect would in all probability spell defeat. It matters not what your vocation may be nor how intellectual you are, if one is not in love with his work it is almost a foregone conclusion that he will not succeed in the true sense of the term. Being in love with your work means that you will be precise and thorough in all that you do, and precision, plus determination, plus thoroughness, is of as vital importance in evaluating diagnosis and treatment of paresis

as it is in any ailment to which the human body is subject.

Granting this, the other essentials in making a diagnosis are, that one should be well grounded in the fundamentals of general medicine; to this must be added a fair knowledge of psychiatry in order properly to interpret mental findings peculiar to those suffering from general paralysis. Another branch of medicine which should receive great consideration in the diagnosis of paresis is that of neurology. It probably stands second in importance to laboratory findings which, at the present time, take first place. Without histories or laboratories a skilled neurologist can return a correct diagnosis of paresis in probably 75 per cent of cases.

Last, but by no means least in importance, our diagnostician should possess enough technical knowledge to enable him properly to interpret all laboratory findings which may or may not confirm the diagnosis. To have all these qualifications requires years of painstaking effort and even then our diagnoses sometimes go awry.

With no intention of casting reflections, I am sure you will agree with the statement that the general run of practitioners throughout the country know but little about this particular kind of work; and this applies also to most of our specialists who function along other lines. It is utterly impossible for any one of us to encompass the whole field of medicine, hence it is that our state hospitals are awake to the fact that upon them, in no small degree, rests the burden not only of taking care of this particular class of patients, but also to bend every effort looking to the arrest and restoration of this practically omnipresent malady, commonly called general paralysis of the insane.

It is usual to think of general paralysis as showing three stages—the prodromal, the fully developed and the terminal; also, there are three main types—the exalted, the depressed and the terminal. The stages are not clearly differentiated and there is no settled uninterrupted course, although in the average case there is a steady, progressive decline. Remissions may occur at any time during the course of the disease, which may come to an apparent standstill.

The disease is commonly insidious in its development and is characterized by episodes of strange behavior not at all in harmony with the previous character of the individual. Those who were formerly honorable and upstanding citizens become dishonest and disreputable; many of them will lie, steal and cheat; the strictly sober man whose moral standing was above reproach not infrequently takes to the

cup that cheers and openly associates with the low and degraded; he loses interest in his home and family and grows careless of personal appearance; where formerly his sexual desires were held under proper control, he now brazenly flaunts his erotic tendencies; the one time even-tempered man now becomes temperamental and is wholly unable to adjust himself to his environment; there are times when he will not brook the least interference—showing fits of violent anger sometimes even to the point of murder. These are usually the first signs of the disease—changes in character and mood which the patient himself is unable to recognize.

There is a pronounced dulling of comprehension so that simple questions have to be repeated; attempts to carry out simple acts are often not done at all, or done badly. All the esthetic feelings become lost. The relatives and friends cannot understand the alteration in the patient's personality, but feel that he is altogether different from what he formerly was. The responsiveness to ethical, esthetic, intellectual and certain conventional standards is involved—the patient no longer shows the same judgment, the same sense of value, a function different from that of mere intellectual activity, and upon which depends the attitude of the whole individual in the face of actual situations. Not all patients are thus. Some few of them have sufficient insight to realize a change in themselves and know that their memory is not what it should be and that they are unable to concentrate and apply themselves to any constructive work as they formerly could.

During the progress of the disease the memory in all ways is progressively impaired, particularly for recent events, retention of new impressions and the correlation of important dates. Ordinary knowledge acquired at school, including the ability to do simple calculations, becomes greatly disordered—particularly when these calculations involve continual attention as, for instance, the 100-7 series. Some patients are disoriented in all spheres and most of them are disoriented for time. An outstanding feature is the inability of the one affected to realize how serious his defects are, and when pointed out to him he either becomes irritable or refuses to discuss the matter further. The majority of cases are in a state of contented dementia.

The exalted type are those who have delusions of grandeur, always of a bizarre nature. They sometimes live in palaces with hallways paneled in gold and alabaster; they are worth billions of dollars or expect to be; some make claims of being God—owning the earth and its

fullness thereof; they have a generous spirit beyond comparison and will write you checks for any amount or give anything asked of them.

The depressed type instead of being euphoric are gloomy and with ideas quite as fantastic and grotesque as those displayed in the grandiose variety. They are in a state of intense depression amounting to stupor and sometimes even to mutism. They may claim themselves to be dead, that their blood has ceased to circulate, no pulse to be felt and that their bodies are utterly destroyed. These sometimes mutilate themselves and may even go so far as to commit suicide. Nearly all their ideas are nihilistic.

Gradually a more profound mental involvement occurs so that the patient leads a purely vegetative existence, having to be cared for by specialists in every way. This is the terminal stage.

Delusions of persecution and even hallucinations are sometimes prominent symptoms, perhaps to the exclusion of exaltation and depression. When such is the case there is the possibility of having general paralysis superimposed upon either a dementia praecox or a manic-depressive base.

The facies of a paretic has something distinctive about it that attracts one's attention. There is a smoothing out of the features so that the patient looks considerably younger than his years, which gives him a vacant expression. Changes in the pupils of the eye are often characteristic. These consist of inequality of the pupils and irregularity of outline, the most striking of all being sluggish or total absence of light reflex. When this is found in connection with the preservation of the accommodation response we then have the so-called Argyll Robertson phenomenon which occurs in from 50 per cent to 60 per cent of all cases.

The speech shows a characteristic disorder. In the early stages it is noticed that the patient slurs his words, rendering speech like that of a drunken man, but as the disease progresses words become more difficult to pronounce and are often distorted beyond recognition. Ultimately the speech becomes so tremulous and difficult that only a few words here and there can be recognized. This great effort to enunciate is also accompanied by great facial tremor. Generalized tremors affecting the outstretched hand, the tongue and sometimes even the whole body may accompany that of the face. The writing also shows changes similar to those described as affecting the speech—there is tremor, the missing of syllables or words and the transposition of syllables so that the words are distorted.

Two types of physical involvement are recog-

nized, the cerebral and the tabetic. In the cerebral type the tendon reflexes are usually exaggerated equally on the two sides, but where focal symptoms have been present the two sides may vary. In the tabetic type the tendon reflexes are either absent or diminished. It is only in focal lesions that the ankle clonus or a positive Babinski can be obtained. Loss of control of organic reflexes occurs throughout the course of the disease so that there may be retention or incontinence of urine or feces.

A rise of temperature in a paretic is occasionally the precursor of a convulsion and, while convulsions are common in the fully developed and terminal stages, they not infrequently appear in the early stage. There are a few cases in which convulsions never occur.

In addition to the mental and physical symptoms enumerated above in a somewhat condensed form there remain to be added cytologic, chemical and serological findings, all of which have been evolved and brought into general use since 1900. In that year Widal, Sicard and Ravaut pointed out that an increase of cell count in the cerebrospinal fluid was of great importance in the diagnosis of various types of nervous and mental disease.

In 1906 Wassermann, Neisser and Bruck applied the Bordet-Gengou phenomenon of complement fixation as a test for the diagnosis of syphilis. This is now known as the Wassermann reaction and it is considered as positive with blood in practically 100 per cent of cases of general paralysis, while it is positive with the cerebrospinal fluid in approximately 95 per cent of such cases.

In addition to these, a more recent test has been the introduction of the colloidal gold test. This test is due to the work of Lang who first used it in 1908 and is a physicochemical reaction that can be read by the coloration in the tube.

It is now a well recognized fact that inflammatory conditions affecting the meninges in general paralysis increase the normal protein content of the cerebrospinal fluid to at least four times greater in amount. This is proven by the Ross-Jones test with a saturated solution of ammonium sulphate.

All of these tests, which are of a strictly scientific nature, if used correctly and in their entirety not only confirm but may also reject, mental and physical findings as correct or incorrect in our efforts to formulate a diagnosis in this protean and widespread malady.

So it is that in making a diagnosis of paresis one must take into consideration the mental, physical and serological findings. When all of these are positive, then the diagnosis is abso-

lutely certain and there is no known condition with which it can be confounded.

There are, of course, some cases of paresis which are complicated with cerebrospinal syphilis or arteriosclerosis. It is frequently very difficult to differentiate accurately between these conditions, but the main facts that we should emphasize are, that cerebrospinal syphilis is an acute inflammatory disorder which comes on usually within the first five years of infection; that it is characterized by severe headaches, delirium, paralysis of the cranial nerves and that when convulsions do occur the results are permanent. The speech, the writing and the personality are never so disordered as they are in general paralysis.

Arteriosclerotic brain disease is usually differentiated by means of cerebrospinal fluid examinations which, in this trouble, are always negative except, possibly, for a slight increase in the protein content. Another point to be remembered in differentiating cerebral arteriosclerosis and paresis is the fact that the arteriosclerotic brain disease is usually ushered in with apoplectiform seizures followed by disorder of memory and emotional instability, which are so typical of this disease, but the deterioration of the personality characteristics of the paretic does not occur.

The treatment of general paralysis by the inoculation of malarial plasmodium can be outlined in a very few words. Practically no other method is now resorted to at State Hospital No. 2. Tryparsamid, given alone or buttressed by mercury, salicylates, arsphenamin, salvarsan, introduced in various ways, in different forms and sometimes in conjunction with mercurial inunctions, have all been tried and found wanting. The impermeability of the choroid plexus to mercurial and arsenical salts is advanced as a cause for such poor showing with these remedies. However, they continue to be exploited by the different chemical and pharmaceutical firms and many physicians continue to use them in neurosyphilis and vascular syphilis with more or less success.

Having a proven case of paresis, and the general physical condition of our patient warranting it, we start out by giving an intravenous of from three to five cc. of double tertian type malarial infected blood with an equal amount of normal saline solution. At State Hospital No. 2 we feel that intravenous infection is preferable to the subcutaneous method for the reason that it is more certain and not so likely to require a second inoculation. Following the period of incubation, which is usually from six to twelve days, the next stage is generally ushered in with a definite rigor followed by

pronounced pyrexia, the body heat sometimes reaching a temperature of 105 F. or higher. We permit the chills and fever to continue daily or every other day, as is sometimes the case, until our patient will have had from twelve to fifteen rigors. Then we begin our quinin—the ordinary sulphate—giving ten grain doses, orally, three times daily for a period of five days. This is followed by five grain doses t. i. d. for another period of five days. This usually concludes the treatment. Some of our patients require a general toning up of the system before specific treatment is begun; the major portion of them have a low blood pressure, some are anemic and all of them have weakened resisting powers; the excretory organs are frequently disordered. These conditions should not be overlooked, but should be remedied.

Pronounced jaundice occurring during the infection calls for prompt interference with quinin to control the pyrexia.

The results of the treatment as carried out at State Hospital No. 2 might be reported as follows:

Total cases treated since October, 1926..	121
Number of cases markedly improved....	46
Number of cases slightly improved.....	37
Number of cases unimproved.....	38

In other words 38+ per cent of the total treated by this method have been sent out from the hospital clear of mind, in good physical condition and eager to resume their respective places among the vast army who constitute the breadwinners of our nation. How lasting these markedly improved cases will be is another question. Only a few of the earlier treated ones have been out longer than two years and, as far as we know, are doing well. It has been possible for us to follow-up and keep check on but few of them therefore we are in no position at this time to report end results.

CONCLUSIONS

That paresis does respond beneficially from the effect of malarial treatment is patent to our whole medical staff; that the double tertian type of plasmodium given intravenously is the type and method that, up to now, has proven most satisfactory; that patients subjected to the treatment should be in the best possible physical condition; that the exalted type of paresis responds more promptly and satisfactorily to malarial infection than do other types.

State Hospital No. 2.

HEALTH CONSERVATION AFTER FORTY*

J. H. WADE, M.D.

OZARK, MO.

The span of life has been remarkably lengthened since 1880 by the prevention and control of acute diseases, largely diseases of infancy and childhood, through applied science. However, old age has by no means been deferred; in fact, the strenuous life and the sedentary habits are shortening the life of the man of affairs. Professor Irving Fisher, of Yale University, says that it is his belief that the mortality after middle age is growing worse and the vitality of the people is, in all probability, deteriorating.

The incidence of heart disease, apoplexy, paralysis, Bright's disease and cancer have doubled in the period since 1880. Degenerative diseases, usually attacking those of from 60 to 70 years of age, have been creeping down to the fifties and forties. Fifty-one per cent of the deaths occurring after 40 years of age is due to degenerative diseases and are preventable to a degree. Eighty per cent of the mortality from these organic diseases is postponable anywhere from a few days to many years by judicious treatment,—often a matter of change of diet and of habits rather than by medicine.

There is something radically wrong with the habits of our big business men, judging from the rapid increase among them of chronic maladies after forty. Multitudes of useful citizens of great constructive value to society have rapidly degenerated in their supposed physical prime, and died without one single indication of disease, although ruddy, robust, cheerful and never really sick in all their forty or more years, yet the physical dynamo could not carry the overload; the reserve is gone, the nervous strain was too great. When a useful citizen crumples down and dies from fifteen to twenty years before his time it is something more than a great family misfortune; it is a civic loss, an inestimable loss to society.

Volumes have been written on the diseases common to middle life but too little emphasis has been placed by our profession upon disease tendencies having the most important bearing upon the length of

* President's address at the 54th Annual Meeting of the Southwest Missouri Medical Society, Springfield, November 1, 1928.

life of the individual and upon the efficiency and well-being of old age. Cardio-vascular-renal disease has doubled in this same age period. Heart disease leads in the actual number of deaths, although gastro-intestinal disturbances head the list of morbidity.

Among mature lives, one-half of all fatal diseases are connected with the kidneys or the circulatory system. With advancing age degenerative changes of the heart and kidneys are so frequently interlaced as to make it often impossible to draw the line where the one ends and the other begins. We know if we live long enough, that a large majority of us will ultimately die from diseases of the heart, arteries or kidneys,—diseases that usually cause very little or no pain. The individual thinks he is in perfect health until too late to remedy the condition.

Arteriosclerosis and chronic disease of the heart are looked upon as diseases peculiar to middle life because they are seldom seen under 40 years of age. Volumes have been written upon their cause and effect, but the fact remains that the first manifestations must be sought if treatment is to be of any avail.

Tuberculosis, once leader in causes of death, now takes third place, due to the agitation throughout the country following the International Congress on Tuberculosis in Washington in 1908.

Pneumonia is responsible for a large proportion of deaths at all ages, but being so frequently the cause of death in the aged it has been called the old man's friend.

Other more chronic diseases of the lungs, not necessarily fatal, are often responsible for a state of semi-invalidism late in life. Diseases of the gastro-intestinal tract really come first of all, with advancing age, atrophy of the various glands of the body begins, the diminished secretion of the gastric juice lowers the digestive functions and intestinal disturbances occur. The normal protective agents are not sufficient to combat harmful influences, such as bacteria in fruit, vegetables and uncooked food, and an already lowered resistance allows the intestinal mucosa to become a fertile soil for the propagation of disease.

Chronic intestinal toxemia, in my opinion, accounts directly or indirectly for more ills than any other one thing that falls to the lot of the individual of advanced age, and is frequently associated with disease of the heart, kidneys, liver, gallbladder, etc. Cancer occurs so much more frequently

after the age of 40 that it is often spoken of as the "Cancer Age." An annual survey and comparison with previous examinations will usually reveal the presence of this disease long before the more easily recognized characteristic symptoms develop.

The prevalence of diabetes increases with age and the obesity of the patient; like the degenerative disease of advancing years, it is unfortunately a painless disease. Here, also, the earlier it is recognized the better it can be treated.

Pyorrhea and infected teeth are far more common after 40 and are usually associated with some constitutional disorder, such as rheumatism, gout, Bright's disease or syphilis, and not of purely local origin.

Fat is fatal after 40; light weight old people live longest. Carefully tabulated insurance statistics of a million lives have proved that the greater the increase in weight after 40 the greater the increase in mortality, regardless of careful medical selection; and the more recent the increase in weight the more positive the increased hazard. Just look around you—how many persons over 80 years of age do you know that are 20 per cent overweight?

Periodic health examinations are becoming more popular every year because the people are slowly awakening to the fact that many diseases begin so insidiously as to be otherwise unrecognized; yet we cannot dispute the fact that no organized effort on the part of our profession has been made until recently to acquaint them with this fact. Early recognition is essential if prevention or cure is expected in any form of the degenerative diseases of middle life or advanced age; the large majority may exist without the slightest consciousness of danger until too late to remedy them.

An effort is being made by the American Medical Association to induce the physicians of this country to encourage periodic examinations of presumably healthy persons, but they do not tell us how far to go along the line of ethical advertising in order to acquaint the people with its advantages. Our State Medical Association is undertaking a campaign of education of the laity in an effort to awaken the gullible public to the contrast between the highly educated physician and the self-advertised charlatan, usually of limited educational advantages and no knowledge of scientific medicine, surgery, or of the anatomy of the human body. Many of our most conservative insurance companies have realized the advantage of health conservation

and have demonstrated its usefulness both in prolonging the life of their policy-holders and increasing their revenues by the additional premiums paid in consequence.

Our large manufacturing concerns make a careful and constant survey of their machinery at intervals in an effort to locate the wear and tear to prevent accidents. All business concerns take stock annually. Why should we not learn early the condition of our vital forces when at our best in order that we also may watch the wear and tear of life and know where the greatest demands are made in time to mend our weak spots?

Thousands of men and women, apparently in the prime of life, are becoming incapacitated or die ultimately from the insidious development of these degenerative tendencies; the economic loss to the nation amounts to a staggering sum. Is there a remedy? I answer that there is, and that the responsibility for carrying it out rests with the medical profession.

Organizations fostered by laymen have been operating for years and through liberal use of paid advertising in the press and other publicity methods, have enlisted a large following. Some of these organizations employ physicians to make examinations and they have been enabled to do considerable good; others have endeavored to operate without a medical examination and have succeeded in doing untold harm; however, as the idea grows other organizations will be formed and whether they will result in good or evil depends to a large extent upon the action of our medical societies. Up to the present time our societies have been inclined to ignore these organizations in the belief that they were attempting to commercialize the profession.

Would it not be a far wiser course to endorse the movement where it is found; that the intent is to render a real service which is in keeping with the program of education now being carried on by our state and national associations? Would it not be safer, both for the profession and the general public, if we would interest ourselves in these organizations to the extent of lending them the assistance of scientific knowledge? A great many medical men object to these organizations on the ground that they would tend to take business away from the general practitioner, but this objection, we feel sure, is due to lack of knowledge of how these organizations operate. Instead of taking business away from the family

physician, the tendency would be to create business for him.

The family physician is too busy to give the necessary time to making these periodic physical examinations, even if he were properly equipped for making them. An organization such as I have mentioned would have at its command all of the scientific instruments necessary for these examinations and would also have a complete laboratory equipment for making the many analyses necessary; if this equipment was in charge of competent physicians, there is no doubt that many incipient cases of degenerate disorders would be brought to light which were not suspected by the patient or the family physician. It is in this way that the general practitioner would benefit; for in no instance would the medical staff of the organization treat any case which came to his attention.

When a patient was found to be in need of medical attention he would be at once sent to his family physician for treatment. In addition to sending the patient to his family physician for treatment, the organization would maintain a file of case histories which would at all times be open to the general practitioners and from which he could get information concerning his patient, that, because of the cost in time and equipment he could not secure for himself. In this way, such an organization would act as a clearing house for the medical profession.

XANTHOMA TUBEROSUM MULTIPLEX

CARTER W. LUTER, M.D.

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One of the world's best clinics in this country in which we as rural physicians live and practice is daily meeting this type and that type of case which often proves as interesting as those seen in the large medical centers, if only we are prone to look for such when the person comes to us seeking relief from his malady. Nowhere does this statement hold as true as it does in the field of dermatology. In view of this fact, the following case which occurs rather rarely, but is seen by the rural and the city practitioner alike, is reported.

REPORT OF CASE

J. C., aged 12, presented an indurated, nodular lesion between the thumb and index finger of the left hand. In the center of the lesion were several openings from which a dry, crystalline, powder-like substance exuded. On the outer aspect of the elbow of the right arm, a large cluster of these nodules was massed together making a lesion about the size



Fig. 1. Xanthoma. Cluster of nodules at elbow.

of an English walnut. The skin over the lesions showed the effect of being distended under pressure, evidenced by the glistening and thinned surface. The nodules fluctuated and the center seemed to be a multilocular cavity, as the contained fluid could be pressed from the one nodule to another. No drainage from the lesion. Nothing in the history of patient or family to lead one to make a diagnosis of tuberculosis but a differential diagnosis of such type of lesion seemed to lie between tuberculoma of the skin, tertiary syphilid, a sporotrichosis, and xanthoma. It was thought that the contents of the lesion with its encapsulated fluid might reveal some clue as to the real diagnosis, if opened. The blood Wassermann was negative and no history or physical demonstration of tuberculous lesion could be found elsewhere. The lesion was opened at one of the points of greatest thinning and from the incision a white, glistening, shining, pasty substance exuded coming through the slit in the skin just as toothpaste comes from the tube in ribbon-like form. Under the microscope these glistening bodies proved to be xanthin crystals. As xanthin is soluble in ether, this solution was used as a therapeutic agent at the suggestion of Dr. C. C. Dennie, of Kansas City, to whom a picture of the lesion was sent. After washing the lesion with a solution of ether, using a small catheter on a Luer syringe for a few weeks, the lesion cured rapidly and left very little scarring.

In questioning the lad later it was learned that two years before he fell on the elbow and about six months later this lesion began. The lesion of the hand cannot be explained by this fall, but the lad is a farm boy subjected to the usual chores and work of hoeing and shoveling so that the probable causative factor is an undernourished condition of the skin plus trauma.

Such cases are well to remember as they may be a stumbling block or a great help in the building of a dermatological practice.

AN ECONOMICAL AND EFFICIENT REINFORCEMENT BOARD

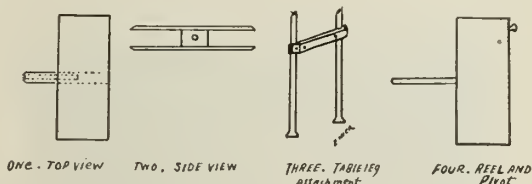
E. T. HIER, Orderly

KANSAS CITY, KANS.

I am much indebted to Dr. M. H. Herzmark, New York, for his work in producing a more efficient and economical means of making plaster-of-Paris reinforcements. Although I have for some time had the idea of making the reinforcements by means of a reel Dr. Herzmark was the first to write about it.*

My method is based upon the same general principle but it can be more easily constructed and at a very reasonable cost. It is more compact and is easier to keep clean.

It consists of two pieces of board $15\frac{1}{2}$ by $\frac{1}{2}$ by 8 inches and tapering at the ends, placed parallel above each other and held apart by a center block of wood 2 by 4 by 8 inches. The pieces of wood are first well shellacked, then enameled. This makes a smooth nonporous surface. In one end of the centerpiece a quarter inch hole, 3 inches deep, is bored and a quarter inch pipe, eight inches in length, is driven into the bore. This makes a very



snug fitting. A piece of 2 by 2 by ? (the width of the spread of the table legs or bench on which the device is to fit)—is used as indicated by Fig. 3. In one end of this a 6/16 inch bore is made, 5 inches in length. This bore is lined with a strip of tin which holds the quarter inch pipe snugly yet allows movement. The tin fitting the pipe closely does away with a ratchet and prevents a too free movement of the reel. The portion illustrated in Fig. 3 is allowed to remain in place when not in use. The reel is taken off, cleaned and stored for future use.

The reinforcements are made by taking the plaster bandage in one hand and, after squeezing out the excess water, one end is lapped over the reel and with the other hand the reel is turned. If short reinforcements or splints are to be used the bandage is cut between the ends of the boards; if a long splint is to be used the bandage is only cut once.

Another very convenient and new device which I think helps make a very efficient orthopedic unit is my method of keeping the plaster-of-Paris bucket clean, but I shall not describe this device in this article as this method appeared in the *Journal of the American Medical Association* issued April 13, 1928.

*J. A. M. A. 91:1802, 1928.

Bell Memorial Hospital.

WASHINGTON UNIVERSITY
CLINICSCONGENITAL HEMIHYPERTROPHY
AND PARTIAL GIGANTISM

DAVID BARR, M.D.

From the Medical Service of Barnes Hospital.
Presented at the Friday Morning Clinical Conference.

It seems to be a rule in nature that one side of the body shall resemble the other so closely that it may actually be considered a mirror image. The law applies so generally that all constituent parts, such as ears, eyes, the two sides of the nose, hands and feet, share in the general symmetry. To be sure, certain differences may be acquired from injury of nerves and from change in blood vessels or circulation. In such instances, there may rarely be localized hypertrophy, as in the clubbed fingers of congenital heart disease. Usually, however, any asymmetry which may develop is due to retarded development or atrophy of the affected side. Congenital over-

growth of one side of the body or of one part is distinctly uncommon and has usually been designated in the literature either as congenital hemihypertrophy or partial gigantism.

During the past year three instances of localized congenital hypertrophy have been under observation in the clinics.

CASE 1. COMPLETE HEMIHYPERTROPHY OF
THE LEFT SIDE

This is a girl of 12 who has been under the care of the Children's Aid Society. Her father, three brothers, two sisters and her paternal grandmother are more than ordinarily obese but have had no anomalies similar to those of the patient. She herself has been, since birth, larger on the left than the right side. In 1921, at the age of four, she began to grow stout. She has been unusually healthy. Her disposition is pleasant. She appears alert and bright. Her intelligence quotient, however, (determined by Miss Barbara Kendall) is only 84 and she is, at the age of 12, in the first half of the fifth grade. Her physical examination shows few abnormalities. She is greatly overweight (142 pounds) but is not tall for her age. Her heart, lungs and abdomen appear normal. The hair growth and genitalia are normal. She shows no abnormal neurological signs. The X-ray of the skull shows a diminutive sella turcica but is otherwise negative.



Fig. 1. Case 1 showing general hypertrophy of left half of face and entire left side of body.



Fig. 2. Posterior view of Case 1. Since she is 2.7 cm. taller on the left side, she stands habitually with weight resting on the right foot.

Measurements taken April 6, 1929, are as follows:

	Right	Left
Standing height	140.5	143.2
Arm length	62.5	64.0
Forearm length	36.8	37.3
Forearm girth (12 cm. below olecranon)	18.7	19.5
Wrist girth	14.3	14.8
Hand girth	14.9	15.6
Thumb length	9.5	9.9
Second finger length	6.5	6.7
Middle finger length	7.6	8.0
Fourth finger length	6.5	6.7
Fifth finger length	4.8	5.4
Leg, anterior superior spine to external malleolus	73.5	77.5
Perineum to internal malleolus.....	62.5	66.5
Patellar edge to middle metatarsal..	32.0	33.5
Thigh girth $\frac{1}{2}$ way between anterior superior spine and patella).....	57.0	58.0
Knee girth	35.0	37.0
Calf girth, 14 cm. below lower edge of patella	34.0	36.0
Great toe length	4.0	4.5
*2d toe length	4.3	5.0
*3d toe length	4.2	4.6
4th toe length	3.9	4.0
5th toe length	2.7	2.8
External canthus to nasolabial fold..	5.0	5.5
Internal canthus to nasolabial fold...	3.0	3.2
Ear length	5.8	6.0
Upper lip	1.6	1.8
Upper canine width	2.0	2.1

* Some slight webbing of the second and third toes on each side.

Complete hemihypertrophy must be considered a very rare condition. Arnold Gesell¹ who made an intensive study of the anomaly was able to collect in 1927 only 51 cases in the whole literature. Lenstrup,² however, the following year, found several cases in the records of Queen Louise's Children's Hospital at Copenhagen. The anomaly presents a marked predilection for the right side, left hypertrophy such as that of our patient occurring only half as frequently. It is always congenital and is usually noted at the time of birth. With this inequality growth proceeds in an orderly manner, the smaller side always remaining smaller but without increase or significant change in the disproportion. In this respect, the phenomenon has a certain resemblance to the growth of somatic dwarfs, the so-called "Tom Thumbs" who are born tiny, develop normally but always on a small scale and finally become miniature adults. In unilateral hypertrophy, it seems almost as if the body were made up of two separate individuals, one slightly larger than the other. This has suggested to Gesell³ the possibility that these individuals are variants of diplopagi and represent a form of twinning.

The completeness of the hemihypertrophy in certain instances is truly remarkable. Since postmortem examinations have been infrequent,

one usually is permitted a study only of the superficial parts. In Arnheim's⁴ case, however, an autopsy was performed. It was found that in addition to the right-sided hypertrophy of arms, legs and face there was an enlargement of the right kidney, the right ovary, the right lobe of the liver, as well as the blood and lymph vessels of the right side. Even the right vagus and right phrenic nerves were twice as large as the left.

Cases in which the hypertrophy is only partial are much more common. The disproportion may be of one side of the face, of one arm or one leg. It may be seen only in the fingers or toes. Sometimes it occurs as a crossed hypertrophy (hypertrophia cruciata) in which the arm and face are enlarged on one and the leg on the opposite side.

The two other patients whom we have observed present a condition of partial gigantism not limited to one side.

CASE 2. LEFT HEMIHYPERTROPHY WITH PARTIAL GIGANTISM, BIRTH-MARKS AND VARICOSE VEINS

A stenographer of 22 years was referred to Barnes Hospital by Dr. William Mook who had observed her since childhood. Her complaints were of varicose veins and pigmented areas on her hands, forearms and body.

Her father had no anomalies but died of "stomach trouble" when the patient was a little girl. Her mother and one brother are living and have no trouble similar to hers.

At birth, large irregular red blotches were noted on the extremities but not on the face. The difference in the size of the two halves of the body was not noted at birth. As a child however she was taken to Dr. Mook who told her family that her whole left side was larger than the right. She also noted as a child that her fingers were large and that her feet and ankles were larger than normal. She had measles and mumps. Until the age of 17, when her tonsils and adenoids were removed, she had frequent attacks of sore throat. Her menstrual periods began at 14, were irregular and occasionally were profuse. For six or seven years she has had, every nine to twelve months, so-called dizzy spells, usually associated with constipation. Without prodromal symptoms, things suddenly seem to go black for 10 or 15 minutes. Consciousness is not lost and she does not fall. This is followed by severe headache, occasionally associated with vomiting. At the time of puberty she first noted enlarged veins in the left leg. For about three years these have been definitely varicosed. They are extremely troublesome whenever she has to stand. Her ankles have always been abnormally large, but not edematous.

She finished high school at 18, studied stenography and worked during her schooling on Saturdays and in the summer. Since graduation she has earned \$85 a month as a stenographer and clerk.

Physical Examination.—She is emotionally hyperactive, laughing on the least occasion. Tears come when she speaks of her deformity and of the difficult time her mother has had in providing a living for her and her brother. She is well nourished. Examination of her heart reveals extrasystoles,



Fig. 3. Case 2 showing hypertrophy of entire left side of body, the deformities of the feet and the enormous varicosities of the veins in both legs.



4. Posterior view of Case 2.

but no enlargement or abnormal sounds. Blood pressure, 118/65. Except for her anomalies she appears normal and vigorous. Examination of blood and urine are negative. The left side of the face appears slightly larger than the right; the left breast is larger as is also the left half of the vulva. There are birth-marks on the dorsum of both hands, involving the fingers and wrists; also on the soles of the feet and the forearms. They are probably present on the legs as well, but this is difficult to determine with certainty because of the extreme pigmentation and varicosities. The photographs (Figs. 3 and 4) show the great varicosity in both legs, the marked discoloration and the highly abnormal size below the knees. The legs and ankles are tender and appear swollen, but there is no definite pitting edema. The soles of the feet are exceptionally thick and give the impression of air cushions. The knee joints are unusually loose, permitting a considerable degree of hyperextension.

The deformities of the feet are most striking and are well shown in Figs. 5 and 6. There is a tendency to syndactylism of the 2nd and 3rd toes on each foot. The enlargement of the great toe on the left is much greater than the right. The fourth toe on the left foot is much smaller than normal and appears extremely dwarfed in the midst of

general hypertrophy. The toe-nails are small and poorly developed. The hands (Figs. 7 and 8) show a partial gigantism, particularly of the left 3d finger.



Fig. 5. Case 2 showing varicosities, partial gigantism and extremely small size of left fourth toe.



Fig. 6. X-ray of feet of Case 2. The extremely small size of the left fourth toe is seen to be due to an atrophy or a failure of development in the metatarsal bone.



Fig. 7. Hands of Case 2 showing great variation in size of the fingers.

External canthus to nasolabial fold....	5.0	5.0
Internal canthus to nasolabial fold....	3.5	3.5
Ear length	5.0	5.0
Upper lip	3.0	3.0
Upper canine width	2.0	2.0

Measurements are as follows:

	Right	Left
Arm length	32	32.5
Forearm length	25	26.0
Forearm girth	24	25.3
Wrist girth	16	17.0
Hand girth	22	22.5
Finger length*—		
Thumb	9.7	9.8
Second finger length	8.3	8.6
Middle finger length	9.8	11.2
Middle finger girth	6.5	7.5
Fourth finger length	9.6	10.1
Fifth finger length	6.8	7.5
Leg, anterior superior spine to external malleolus	88.0	88.5
Perineum to internal malleolus.....	77.0	77.5
Thigh girth, (½ way between A. S. S. and patella)	52.5	56.5
Knee girth	40.5	43.0
Calf girth, (14 cm. down from edge of patella)	42.5	44.5
Foot length*—		
Heel to end of great toe.....	26.1	28.9
Heel to end of 2d toe.....	26.6	27.6
Toe length*—		
Great toe	6.6	7.9
Second toe	6.3	5.7
Third toe	5.6	5.0
Fourth toe	5.0	4.0
Fifth toe	4.0	3.2
Metatarsals*—		
First	5.8	7.4
Second	8.4	8.7
Third	7.8	7.6
Fourth	7.3	5.2
Fifth	7.2	7.5

* Measurements made from X-rays.

In this patient the measurements of the face are the same on the two sides. Otherwise the hemihypertrophy is quite as complete as in the first case. She has, in addition, irregular gigantism of the extremities, varicosities and port wine stains. It is of great interest



Fig. 8. X-ray of hands of Case 2.

that there is either atrophy or failure of development in the fourth metatarsal bone of the left foot.

CASE 3. PARTIAL GIGANTISM WITH BIRTH-MARKS AND VARICOSE VEINS

This is a girl of 15. Her complaints are of deformities of her hands and feet and a shortening,

swelling and discoloration of her right leg. Her family history is of special interest. Her father, who is living and well at the age of 45, has a deformity of his second toe on both feet similar to that of the patient. His mother also has a birth deformity of the same two toes. As a child the patient was healthy. It was noted in early childhood that she had dark red irregular splotches on the right leg. Also it was found that the veins on the right leg were somewhat more prominent, but these did not become varicose until one or two years ago. The right leg was always shorter than the left and the second toes on both feet were greatly enlarged. For the past two years the right leg has been somewhat swollen. This became much more marked after an acute inflammation occurring in July, 1927. At this time she suddenly became dizzy; her leg felt numb and tingled. This was followed by a chill and fever. The leg then became red, swollen, tense and tender to touch. The fever lasted for 24 to 48 hours during which the leg was kept perfectly quiet. Since that time she has had two somewhat similar attacks occurring at intervals of a month or two. She now remembers that she had similar but minor symptoms before the severe attack in July, 1927. These paroxysms seem to be precipitated by no special circumstances. The discolored areas of

the legs have always bled easily, sometimes spontaneously and sometimes from trauma.

Physical Examination.—She is well nourished and well developed. The port wine stain of a birth-mark is apparent on her back. The disproportionate length of her left leg has given rise to a scoliosis. There is also an unusual degree of lordosis. The right leg is shorter than the left, but has a greater circumference. There are numerous vascular abnormalities on the right leg; varicosities, capillary hemangiomas and a thickening of the subcutaneous tissues resembling elephantiasis. The abnormalities of the toes are well shown in Figs. 10 and 11.



Fig. 9. Case 3 showing increased girth and varicosities of right leg which is, however, shorter than the left.



Fig. 10. Feet of Case 3 showing varicosities and discoloration of right foot and partial gigantism involving both sides.



Fig. 11. X-ray of feet of Case 3.

There is also a dermatitis and a bluish-brown pigmentation.

The measurements are not complete.

Length of fingers*—	Right	Left
Thumb	9.5	9.1
Second	7.8	7.4
Third	8.1	8.1
Fourth	7.7	7.9
Fifth	6.6	6.3
Anterior superior spine to ankle.....	78.0	80.0
Lower border patella to ankle.....	35.0	35.0
Circumference of thigh	42.0	40.0
Circumference of leg	33.0	31.0
Circumference of ankle	23.0	20.0
Length of Toes*—		
Great toe	5.0	6.5
Second toe	5.7	6.9
Third toe	4.2	4.7
Fourth toe	3.7	4.1
Fifth toe	3.4	3.3

* Measured from X-rays.

The second and third cases are illustrative of the irregular and mysterious growth of partial gigantism. In certain cases in the literature the overgrowth reaches astounding limits. Friedberg⁵ saw a case of crossed hypertrophy in a child who was 10 years old and 41 inches tall. The left arm was moderately hypertrophied. The right leg measured 28 inches, being 7½ inches longer than the left. The right great toe was 6¼ inches in length.

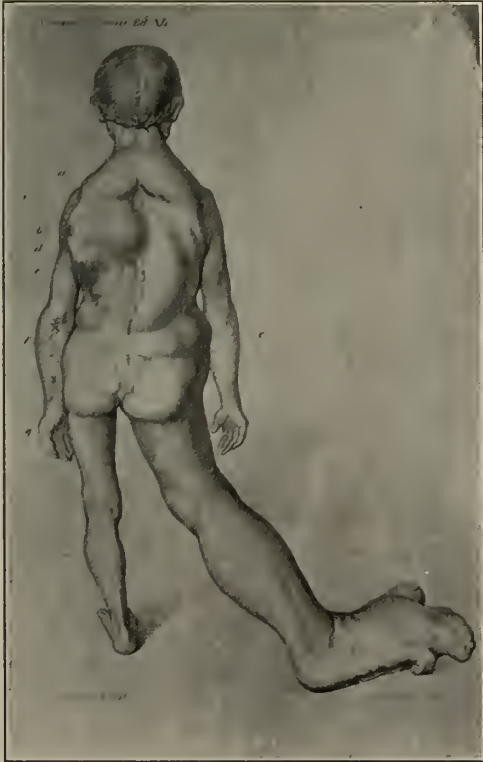


Fig. 12. Reproduction of drawing of a case of crossed hypertrophy reported by Friedberg (Virchows Arch. Vol. 40).

Curling⁶ found a sickly child of fifteen in whom a middle finger measured 5½ inches in length, only ½ inch shorter than the corresponding finger of O'Byrne, the eight foot giant in the Hunterian museum.



Fig. 13. Reproduction of drawing of a case of partial gigantism which was reported by Curling (Med. Chir. Trans. Vol. 28).

In partial gigantism, many other anomalies have been occasionally found. These have involved skin, blood vessels as well as organs. Some are congenital while others develop later. Among the commonest changes are symmetrical syndactylism, which is illustrated in Case 3 and her family and is present in some degree both in Case 1 and Case 2. Birthmarks including pigment stains, pigmented nevi, telangiectases, angiomas and port wine stains are frequent. Hirschsprung's disease, cryptorchidism, polydactylism have been occasionally reported. The varicosities seen in Cases 2 and 3 are very common but are not usually apparent at birth. Gesell¹ and Ferez⁷ have given rather full accounts of the skin changes and the blood vessel anomalies and deformities which accompany the condition. Gesell has called attention to the frequent occurrence of feeble-mindedness.

There has been a tendency in the literature to separate cases rather sharply into the categories of hemihypertrophy and partial gigantism. It seems unlikely however that there can be any dividing line between the two conditions. The difficulty of any sharp differentiation appears in Case 2, in which

hemihypertrophy of the left side occurred with local gigantism on the opposite side. All gradations from the complete hemihypertrophy to the most localized hypertrophy may be found in the literature. This conclusion was also reached by Graetz⁸ whose recent review is one of the best descriptions of the condition.

The relation of partial gigantism to lipomatous hypertrophy should be mentioned. The latter consists of increase in size, sometimes enormous, of one or more fingers or toes. Ferez⁷ who has reviewed the subject thoroughly has called it progressive lipomatous dystrophy. Although the localized hypertrophy may be as great as in the most extreme examples of partial gigantism, there are important distinctions. The increase in size is due to an enormous localized deposit of fat without marked abnormality in bone or muscle. It is frequently accompanied by a diffuse lipomatosis. Seldom congenital, it continues to increase in size for months or years after the growth of the body is otherwise attained. Ferez believes that the condition is entirely separate and distinct from partial gigantism.

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GANGRENE OF THE ORBIT AND • NARES IN DIABETES MELLITUS

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Presented at the Friday Morning Clinical Conference.

Gangrene involving parts of the face is a rare complication of diabetes mellitus. In ophthalmological literature discussion of gangrene is limited almost entirely to that involving the eyelids in certain specific infectious diseases. A few cases of gangrene of the nasal septum and adjacent structures and rare cases of gangrene of other parts of the face have been reported in diabetics. Special mention should be made of Bower's report¹ where

three cases were described in which there was gangrene of the nasal septum and turbinates in young diabetics. Two of these developed gangrene of the eyelids on one side. In one, the necrosis involved the cheek and part of the upper lip; in another, the soft palate. Bower refers to two other cases in the literature: one a girl who developed sloughing and gangrene of the orbital tissues following a needle operation for cataract; the other, an elderly diabetic with gangrene of the lip. The following case is an example of these unusual and horrible complications:

A small, frail, undernourished, married woman, 21 years old, had had typical symptoms of diabetes for three years. Her past history was noteworthy in that infections of various types had been frequent. Following a breast abscess in 1926 glycosuria was discovered. Although a limited diet without insulin was followed, she entered the hospital several months later in diabetic coma from which she was rescued by insulin therapy and more careful diet adjustment. She was first seen in the diabetic clinic of Washington University in August, 1927. Cooperation was not satisfactory. Visits to the clinic were infrequent and she appeared quite indifferent as to the outcome of her malady. There were no marked indiscretions in diet and insulin was given regularly but she seldom tested her urine and made no attempt to vary the insulin in order to keep the urine free from sugar. She was admitted to the hospital in January, 1928, with an acute suppurative cervical adenitis which healed rapidly after incision and drainage. At this time her diet contained 60 grams of protein, 175 grams of fat and 80 grams of carbohydrate, with 65 units of insulin each day.

About ten days before her last admission, what was thought to be a sty appeared on the lower lid of the left eye. The eye became more generally inflamed and the right eye became involved. She was first seen in the Washington University Dispensary from which she was immediately admitted to the hospital. She was emaciated, dehydrated and hyper-ventilating but quite conscious and in no great pain. The left eye was injected and the lids reddened and swollen. The skin surrounding the orbit was inflamed. The pupil of the left eye reacted and the eye was freely movable. The inflammation about the right eye was much less marked. Her temperature was 102° F., pulse 120 and respiration 20. The blood sugar was 502 mg. per cent; blood NPN 33 mg. per cent. The white blood count was 12,000 with 79 per cent polymorphonuclear leucocytes. A culture of the left eye showed hemolytic staphylococcus aureus.

During the first twelve hours she was given 110 units of insulin and about 100 grams of carbohydrate while fluids by mouth were energetically forced. By the next morning ketosis had disappeared and the blood sugar was 270 mgs. The eyes were treated by packs soaked with hot boric acid solution.

The condition of the eye did not improve. On September 27 the edema of the eyelids was very marked and there was an extension of the process over the forehead and cheek. The left eye was fixed and somewhat proptosed. The cornea was hazy and the fundus could not be seen. There was little pain or tenderness. At this time it was noted that the inner aspect of the upper lid and adjacent

1. Bower, C. H., *J. A. M. A.*, **82**:1325, 1924.



area of the nose was grayish-blue and covered with a fine wrinkling, suggesting the loss of superficial epithelium. By September 30 there was definite gangrene of the entire upper lid, the inner half of the lower lid and nearly all the left half of the nose with distinct demarcation. Most of the hard palate on the same side was involved, the gangrene ending close to the midline. A few days later an area of gangrene appeared on the upper lip just under the left external nares.

The patient never had much pain. The temperature varied from normal to 102° F. A transfusion was followed by only slight temporary improvement. The carbohydrate tolerance became extremely low. Each twenty-four hours she was given 65 grams of protein, 175 grams of fat and 95 grams of carbohydrate. With this she required about 150 units of insulin daily. Toward the end of the second week her temperature rose to 104° F. and 105° F.; she became involuntary of urine and feces and finally comatose. The coma was presumably from toxic absorption because the diabetes and ketosis were under control. The scene was terminated on October 10 with a temperature of 107° F. No post-mortem examination was granted.

The underlying mechanism producing the gangrene must have been quite distinct from that causing gangrene of the extremities in elderly diabetics where chronic obliterative arterial disease is of prime importance. Occlusion of a simple large artery could not account for the distribution of the necrosis. An acute arteritis of a number of small arterial branches

may have been the basis of the process. It may possibly have been related to an extreme edema developing in a relatively closed space similar to the gangrene which is seen after subcutaneous injections of calcium chlorid or strong glucose solutions. The tendency for a diabetic to develop edema possibly intensified the local edema. One other conceivable factor might be noted. Tissues devitalized by the relative absence of carbohydrate in cell metabolism may be thought of as approaching death and conceivably less able to tolerate the local high concentration of toxins. This may have been a very important factor in causing this unexpected extensive tissue death.

A case which may be relevant to the present discussion, was seen in June, 1924, by Dr. Malvern Clopton by whose permission it is now reported. A physician, 65 years old, entered St. Luke's Hospital complaining of edema of the tongue and neck and severe pain in the ears, tongue and neck. Seven days previously while eating strawberries he noticed his tongue had become very sore, feeling as if it were blistered. Two days later, because of the lingual swelling, he could not get his teeth together and had the greatest difficulty in swallowing. Examination in the hospital showed a large, swollen, red, tender tongue with no area of fluctuation. His neck was tender but there were no palpable glands. General physical examination was essentially negative. Blood pressure 190/90. Blood sugar was 380 mgm. There was ketosis but no marked acidosis.

Although the diabetic condition was fairly well controlled by diet and insulin, the patient became very toxic. Two days later there was a large necrotic area under the right side of the tongue, extending from near the midline backwards as far as one could see. Near the right lower bicuspid there was an opening on the under surface of the tongue which produced a profuse foul-smelling discharge. This was opened by forceps. Although following adequate drainage there was almost immediate improvement in his general condition, a large sharply defined slough appeared on the right side of the tongue as the edema subsided. He slowly but steadily improved. About three weeks after admission the slough was removed. It consisted of a large part of the right side of the tongue. The area healed fairly rapidly and resulted in very little defect in the function of the tongue. During the five years which have followed he has had no similar attacks. His diabetes is under control and he is able to perform his duties.

THE JOURNAL

OF THE

Missouri State Medical Association

JUNE, 1929

EDITORIALS

THE SPRINGFIELD SESSION

The House of Delegates transacted the business of the Seventy-Second Annual Meeting at Springfield in remarkably rapid time yet all subjects were discussed with deliberation and the purpose of all problems was well considered before final action was taken.

Among the important questions decided was the proposition to finance an executive secretary for the St. Louis Medical Society. Evidently the advantages of this method of contact between the medical profession of the county and the public were grasped and understood so readily that no extended discussion was required. The proposition was authorized when the House of Delegates adopted the report of the Council without a dissenting vote, the Council having recommended the trial of this undertaking.

Several proposals offered by Dr. Ridge in his message and recommendations were approved and referred to a special committee for study and report at the next Annual Session. One of these proposals is a Memory Fund to be established by donations of members who send to the fund the amount of money they would have spent on floral contributions to deceased friends. The Association is then to send an engraved announcement to the family of the deceased, stating that the doctor had contributed to this fund what he otherwise would have spent on flowers.

Another plan offered by Dr. Ridge was an insurance fund whereby each member would pay into the fund from fifty cents to one dollar upon the death of any member of the Association. When this fund reached a sufficient sum the family of the deceased member would receive a check from our treasurer after notice of his death. It is estimated this will produce from \$1500 to \$2000 for the family of each deceased member and not entail a heavy burden upon any member.

The secretary's report contained a statement that the St. Louis *Post-Dispatch* had adopted the policy of excluding all medical advertisements whether of remedies, physicians, or hospitals that failed to establish the reliability and the truthfulness of their assertions. Within a week after the paper adopted this policy a

eighty-four page edition contained less than a half page of advertised medicines. The House of Delegates adopted a resolution commending the St. Louis *Post-Dispatch* upon the advanced step it has taken in protecting the people from fraud and imposition in the care of their health.

The scientific program was carried through without interruption. Only two or three members failed to appear and these wired their regrets and stated the reasons for not being present. Many expressions of appreciation of the papers were heard. The audience at each session was orderly and attentive and seemed to take a deep interest in the subjects. Our guests were received with applause and their contributions proved highly interesting and instructive.

The registration was 363, much less than was expected. Storms and floods prevented a large number of members from getting through after they had started, and others did not make the journey on account of the weather.

Hannibal was selected as the place of the meeting for 1930. It is just twenty years since our Association met in Hannibal and the members in Marion County were very anxious to show us what a good town Hannibal is now.

Dr. T. W. Cotton, Van Buren, president-elect, was installed as president on Wednesday afternoon and took charge of the meeting. The new officers elected are: President-Elect, Dr. W. C. Gayler, St. Louis; secretary, Dr. E. J. Goodwin, St. Louis, and treasurer, Dr. G. W. Hawkins, Salisbury, were reelected. The only changes in the councilors were the election of Dr. Daniel Morton, St. Joseph, to succeed Dr. H. S. Conrad, St. Joseph, as councilor of the 2nd District, and Dr. Ralph L. Thompson, St. Louis, to succeed Dr. W. C. Gayler, as councilor of the 20th District. Dr. Emmett P. North, St. Louis, was reelected delegate to the A. M. A., with Dr. Ross A. Woolsey, St. Louis, as his alternate. Dr. E. J. Goodwin, St. Louis, was reelected delegate to the A. M. A., with Dr. W. M. West, Monett, as his alternate. Dr. S. L. Baysinger, Rolla, was elected delegate to fill the unexpired term of Dr. W. J. Ferguson, Sedalia, deceased. Dr. A. H. Marshall, Charleston, was elected alternate for Dr. Baysinger. Drs. E. H. Skinner, Kansas City, and A. R. McComas, Sturgeon, complete our quota of delegates to the A. M. A., but their terms do not expire until 1930.

BOND ISSUE FOR CARE OF THE TUBERCULOUS IN ST. LOUIS

Interest in a bond issue to relieve the tuberculosis situation appears to be reviving in St. Louis, following a temporary set-back when

the proposition failed to obtain a place on the ballot in the special election for a Municipal Airport. Dr. Howard H. Bell, City Tuberculosis Controller and president of the Trudeau Club, has laid the matter again before the public, and it has been taken up by the daily press both in the news columns and editorially.

Last spring the Trudeau Club pointed out in a resolution, subsequently endorsed by St. Louis Medical Society: "There has been a growing demand for more beds for tuberculous patients in the last few years which has reached a stage of acuteness and demands immediate action by the City of St. Louis. . . . The most acute public health problem today in St. Louis is tuberculosis."

A committee was appointed by the St. Louis Medical Society to foster a bond issue of \$1,750,000 for Koch Hospital and \$350,000 each for City Hospitals Nos. 1 and 2, pursuant to this resolution. It was pointed out that moribund and hopeless cases should not be admitted to Koch Hospital, and advanced cases should be cared for at the city hospitals in 100-bed pavilions, separate from the remainder of the hospitals for the benefit of sanatorium regime. It was recommended that smallpox cases be removed from Koch Hospital, and that Koch Hospital, avoiding make-shifts and temporary structures, be improved along the urgently necessary lines with permanent, adequate, modern and substantial buildings.

It is now more than a year since the committee and the two organizations directed the attention of the public to this situation, one of a sort which does not improve with time and public neglect. Investigators of established competence, without a dissenting voice that we recall, have agreed that the situation exists. That, surely, is ample evidence that the cause is just. The long delay since it was brought up under what seemed auspicious circumstance might be discouraging had we not learned that it requires eternal vigilance to stimulate the public to action on a matter of this sort. We have learned also that this apparent neglect of human welfare is not callousness, but the natural consequence of the fact that many other interests are more immediate for the laity. That the tuberculosis crisis once has been before the public, rather than a discouragement, is in fact an advantage; for the public is thus prepared for a re-awakening of the movement.

ECONOMIC LOSS FROM ILLNESS

The business angle of a matter of highest medical importance was presented recently by Irving Fisher, Professor of Economics in Yale

University, in a copyrighted article published in the *St. Louis Post-Dispatch*. Prof. Fisher dealt with the dollars and cents loss of illness among industrial workers, with particular reference to last winter's wave of influenza. The subject, that of preventing illness in industry, is one to which has been devoted not merely the utmost interest but the utmost efforts of the medical profession. The economist's side of it, therefore, is a familiar problem treated from a refreshingly different viewpoint, and some of his conclusions merit our consideration.

Professor Fisher mentioned a corporation whose common stock earnings had shrunk to one-third or one-half normal because one-fourth its force was suffering from respiratory infections. Illness in the United States, he related, was estimated by Dr. Homer Folks to cost \$15,000,000,000 a year. The Public Health Service had found that colds and bronchitis caused 419 annual cases of sickness per 1000 population, and influenza and grippe were second with 143 per 1000. He pointed out that "more than half the population, therefore, have respiratory ailments every year with losses of hundreds of millions not only to employers, but to the families of the whole population in decreased efficiency and production and in extra expenditures for illness." He cited that Dr. Volney S. Cheney, medical director of Armour and Company found that 45 per cent of absences in most of the large industries was caused by colds or the more serious respiratory diseases.

The National Industrial Conference Board, Dr. Fisher wrote, found in an analysis of 4600 plants employing 2,500,000 persons that most of the large establishments employ full time physicians while many of the smaller ones have at least a trained nurse under the occasional supervision of a local physician. He said that the Board had suggested establishing single, well equipped medical units for groups of small plants conveniently located, with the cost divided between them. The average cost of industrial medical attention was \$5.14 a worker as reported in 1924 by 447 concerns and in no case did it rise to \$5 per \$1000 pay roll, or one half of one per cent.

"Prevention of sickness," he concluded, "is the common meeting ground of employers and employees, where their interests are identical. For every day of health gained, the men and their families gain the wages they formerly forfeited during sickness, besides the expenses for the doctor, for operations, special diets and nursing which cut into their allowances.

"On the side of the employer experience shows that for every dollar he expends on a modern system of industrial sickness preven-

tion he saves many dollars formerly lost in reduced production, rapid turnover of labor and costly interruptions and retardations of business."

NEWS NOTES

The scientific session of the American Heart Association will be held in Portland, Oregon, July, 9, 1929, during the meeting of the American Medical Association.

Dr. Elbert J. Lee, Jr., has been appointed superintendent of the St. Louis City Hospital to succeed Dr. Eugene A. Scharff, who recently resigned. Dr. Lee was superintendent of the St. Louis City Sanitarium for four years.

Dr. Curtis H. Lohr, superintendent of the Isolation Hospital in St. Louis for the last three years, was appointed hospital commissioner by Director of Public Welfare Salisbury on May 16. He succeeds Dr. J. Wilbur Shankland, who had held the position since 1925. The hospital commissioner has charge of all municipal hospitals and similar institutions in St. Louis.

On May 16 Governor Caulfield announced appointments on the State Board of Health. Dr. James Stewart, Jefferson City, is reappointed a member and secretary of the Board. The other members are: Dr. H. L. Kerr, Crane, reappointed; Dr. H. W. Carle, St. Joseph; Dr. E. Sanborn Smith, Kirksville; Dr. Francis M. McCallum, Kansas City. Dr. W. A. Clark, Jefferson City, and Dr. H. S. Gove, Linn, hold over as their terms have not yet expired.

The United States Civil Service Commission announces open competitive examinations for trained nurse, trained nurse (psychiatric), and bacteriologist. Applications for trained nurses must be on file with the Commission at Washington, D. C., not later than June 25, and for a bacteriologist not later than July 3. The examinations for nurses are to fill vacancies in the Panama Canal Service and for a bacteriologist in the U. S. Public Health Service in Honolulu. Full information may be obtained from the U. S. Civil Service Commission at Washington, or from the Civil Service Board of Examiners at the post-office or custom-house in any city.

Colonel George A. Skinner, M.C., Surgeon of the 7th Corps Area, made his annual official

visit to St. Louis, April 8, 9 and 10. Colonel Skinner is the Area representative of the Surgeon-General of the Army. The principal purpose for the visit was the inspection of the two Medical Units of the R. O. T. C. (Reserve Officers Training Corps), the one in St. Louis University and the other in Washington University. Colonel Skinner expressed himself as highly pleased with the caliber and type of the young men he found in these schools and in the units.

While in the city Colonel Skinner spent several hours in conference with doctors who are serving in the National Defense as commanding officers of reserve organizations, such as medical regiments, general, evacuation and surgical hospitals. The profession in Missouri sponsors many such units, well organized, well trained and efficient. Colonel Skinner took occasion to thank several of those present for some very constructive work in connection with the law and regulations governing the Reserve. Plans for active duty and inactive training of the units and for individuals were formulated and discussed.

On the evening of April 8 a special called meeting of the Medical Reserve was held at Washington University School of Medicine. Colonel Skinner announced and explained the plans for Training Camps for Medical Department Reserve Officers for the coming summer. There are to be two general camps, the first from June 7-30 inclusive, and the second from July 7-20 inclusive. The first camp will be filled with the recently commissioned officers, particularly those who have just been commissioned from the R. O. T. C. Units. With these as unit or group leaders will be sent some of the older men—veterans of the Great War. To the second camp will be ordered reserve organizations who will train under their own commanding officers. Each unit will attempt to meet in theory the difficulties that they would find if confronted with an actual mobilization in case of national emergency. Both camps are to be held at Fort Snelling, Minnesota, a delightful location which is becoming increasingly popular with the Reserve Officers who are fortunate enough to be ordered there. The number ordered is limited by appropriations.

A national appeal for endowment of scholarships for needy deaf children has been issued by Central Institute for the Deaf, which is completing a \$350,000 addition at 818 South Kingshighway in St. Louis. The aim of the scholarships is to give each pupil ready competence in lip reading, fluent and natural speech and general preschool training so that he may

take his place with his fellows by the time he reaches school age. The annual cost of a resident pupil is \$1250, everything included, requiring \$25,000 for perpetual endowment, while a scholarship for a day pupil, who does not live at the school, requires \$10,000 for perpetual endowment. Some 150 children of needy families in 25 states are on the waiting list of the Institute, and many of them are under six and cannot enter any state or local school.

Stanley R. Miller, of New York, formerly of St. Louis, has established the Sophia Miller perpetual resident scholarship with an annual check for \$1250 and announcement that it would be carried on by a \$25,000 endowment included in his will. The first such scholarship, given by Mrs. Max Adler, of Chicago, has supported a Chicago child in the school for eight years. The Marie Ittner Scholarship recently was established by Mrs. William B. Ittner, of St. Louis. The Lucien B. and Katherine E. Price Scholarship of the Price Foundation, Greenwich, Conn., is in its second year and supporting a resident pupil from Indiana. Four day pupils are supported this year by \$2500 subscription of the Tilles Fund of St. Louis, and 27 day pupils and three residents are supported partly or wholly by scholarships. The Institute voluntarily withdrew from the Community Fund Jan. 1, 1928, as a national institution.

The following articles have been accepted for New and Non-official Remedies:

Abbott Laboratories

Bismarsen

Ciba Co., Inc.

Digifoline—Ciba

Digifoline—Ciba Liquid

Ampules Digifoline—Ciba Solution, 1 cc.

Ampules Digifoline—Ciba Solution, 5 cc.

Tablets Digifoline—Ciba

Parke, Davis & Co.

Diphtheria Toxoid

E. R. Squibb & Sons

Insulin—Squibb, 80 units, 10 cc.

Winthrop Chemical Co., Inc.

Tablets Theocin Soluble, 2½ grains



LEWIS E. SOUDER, M.D.

County. He entered the practice of medicine, following his graduation, at Freedom, Osage County. Thence he removed to Ryors, and in 1920 took up his practice at Chamois. He married Miss Esther Workman, of Ava, on December 21, 1898. One of their sons, Paul D. Souder, is a senior medical student at St. Louis University School of Medicine. Dr. Howard Workman, Pershing, is a brother-in-law of Dr. Souder. Among the physicians who attended the funeral were Drs. J. B. Kiefer, Arthur Sipron, C. A. Albin, of St. Louis; Drs. J. A. Cooper, E. T. Zewicki and J. F. Jones, of Linn. So many friends gathered for the services in St. John's Evangelical Church at Chamois that the capacity of the edifice was overtaxed, and a number stood outside. Services were conducted by the Reverend J. M. Brewster, and interment, with Masonic honors, was in Oakland Cemetery. Dr. Souder was a member of the Christian Church.

Dr. Souder is survived by his widow, two sons, Paul D. and Silas Barnes Souder, two brothers and four sisters. The steadfast will which was his through life was evinced in his graduation in medicine at an age later than the ordinary, and in less than a decade of years at Chamois he had become a leader of the community.

JOHN A. MITCHELL, M.D.

Dr. John A. Mitchell, Branson, a graduate of Jefferson Medical College of Philadelphia,

OBITUARY

LEWIS E. SOUDER, M.D.

Dr. Lewis E. Souder, Chamois, a graduate of American Medical College, St. Louis, 1913, died at his home April 12, 1929, of sclerosis of the coronary arteries, aged 51.

Dr. Souder was the son of John W. and Nancy Theresa Souder, of Rockbridge, Ozark

1877, died March 25, 1929, of pneumonia, aged 78.

Dr. Mitchell was a native of Monmouth, Illinois, and received his preliminary education at Monmouth College. He practiced at Branson since 1917. In 1923 he was elected president of the Taney County Medical Society of which he was a member for twelve years.

JOHN WESLEY BOLTON, M.D.

Dr. John W. Bolton, Warrensburg, a graduate of Ensworth Medical College, St. Joseph, 1894, died March 7, 1929, aged 66.

Dr. Bolton became a member of the Johnson County Medical Society in 1915, soon after his removal to Warrensburg from Iola, Kansas, where he had practiced for twenty years.

JOHN C. FARIS, M.D.

Dr. John C. Faris, Caruthersville, a graduate of Marion-Sims Medical College (now St. Louis University School of Medicine), 1903, died at the Jewish Hospital, St. Louis, April 1, 1929, of pneumonia contracted ten days previously, aged 47. He had come to St. Louis for treatment for heart trouble.

Dr. Faris was an eye, ear, nose and throat specialist who practiced in Caruthersville for twenty-six years. He received his preliminary education at the University of Missouri. He was a member of the Pemiscot County Medical Society and a Fellow of the American Medical Association. He is survived by his widow, Mrs. Marie Faris, and two children, John C. Jr. and Barbara; two half brothers, Judge C. B. Farris, St. Louis, and Robert L. Farris, Washington, D. C.; three sisters, Mrs. Virginia Cunningham and Mrs. Mary Crider, Caruthersville, and Mrs. Anna Reeves, Texarkana, Arkansas.

RESOLUTIONS ADOPTED IN MEMORY OF DR. W. J. FERGUSON

The following resolutions in memory of Dr. W. J. Ferguson Sedalia, were adopted by the Pettis County Medical Society, May 20, 1929.

Dr. Wilson J. Ferguson, Sedalia, former president of the Pettis County Medical Society, died at his home March 18, 1929, after nearly one year of illness.

Dr. Ferguson began the practice of medicine in Pettis County in his early manhood, first at Hughesville, later in Sedalia, where for more than thirty-five years he was an active (practitioner as a) physician and surgeon. He served as president of this Society and of the State Medical Association in 1920. He was a Fel-

low of the American Medical Association and attended its meetings each year when possible. He acted as examiner on the Pettis County Local Draft Board from April, 1917, to July, 1918, at which time he was commissioned Captain of the Medical Corps, United States Army, and ordered to active duty, serving in that capacity throughout the remainder of the war. He was at all times a faithful, honorable and highminded physician and citizen. He was active in all civic affairs pertaining to the city and state of which he was a resident. He served as a member of the State Board of Health for a term of four years, from 1917-1921.

The members of the Pettis County Medical Society here assembled testify to the ability and integrity of Dr. Ferguson in his professional life; we regret his passing, and we tender to his bereaved wife and son our sincere sympathy, therefore, be it

Resolved, that this memorial be spread upon the records of our Society, a copy thereof be suitably prepared and presented to the widow and son of Dr. Ferguson, and a copy be sent to the Missouri State Medical Association for publication in THE JOURNAL.

ALFRED E. MONROE.

C. B. TRADER,

J. G. LOVE,

Committee.

COMPARISON OF LEUKOPLAKIA, MALAKOPLAKIA, AND INCRUSTED CYSTITIS

Two cases of incrustated cystitis, two cases of leukoplakia of the bladder and one case of vesical malakoplakia are reported by Francis H. Redewill, San Francisco (*Journal A. M. A.*, Feb. 16, 1929). To warrant a diagnosis of malakoplakia, a portion of the plaques removed should show macrophage cells and Michaelis-Gutmann bodies. Cases of malakoplakia are rare, only forty-four cases having been reported in the literature to date. Eighty-eight cases of leukoplakia have been reported, whereas incrustated cystitis is of rather common occurrence. These three infestations of the urinary bladder resemble one another in that calcium salts are deposited and there is a tendency to epidermization. The pushing of all the vitamins in the diet, and the injecting of parathyroid were found to aid materially in the treatment of all three of these conditions. Valuable adjuncts in the treatment are the Player method of cauterizing, diathermy and ectoantigen injections. Malignant changes in the vesical plaques and blocking of the ureters are grave complications. However, if the lesions have not advanced to the malignant stage, even involvement of the kidneys and ureters—provided the ureters are patent—need not necessarily portend a bad prognosis, if parathyroid and vitamins are administered early with routine treatment. When parathyroid is administered, accurate determinations of the serum calcium should be made to avoid overdosage; i. e., symptoms of hypercalcemia.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.
Ralls County Medical Society, December 17, 1928.
Chariton County Medical Society, December 28, 1928.
Mercer County Medical Society, January 2, 1929.
Camden County Medical Society, January 11, 1929.
Benton County Medical Society, February 13, 1929.
Dent County Medical Society, April 3, 1929.
Marion County Medical Society, April 8, 1929.
Platte County Medical Society, April 11, 1929.
Atchison County Medical Society, April 22, 1929.
Christian County Medical Society, April 24, 1929.
St. Francois-Iron County Medical Society, April 24, 1929.
Schuyler County Medical Society, May 3, 1929.
Shelby County Medical Society, May 6, 1929.
Lafayette County Medical Society, May 15, 1929.
Scotland County Medical Society, May 22, 1929.

BATES COUNTY MEDICAL SOCIETY

The regular meeting of the Bates County Medical Society was held in the Court House, at Butler, Thursday, April 18, 1929, at 2:00 p. m. The following members were present: Drs. R. E. Crabtree, Geo. H. Thiele, E. N. Chastain, of Butler, and Dr. C. W. Luter, Adrian. The small attendance was probably due to the inclement weather and bad roads. Let us hope that when our Farm-to-Market road program is complete that we shall have a perfect attendance record much to the happiness of the secretary.

The annual election of officers was held and Dr. A. B. Freeman, Rockville, was reelected president and Dr. C. W. Luter, Adrian, reelected secretary; delegate, Dr. R. E. Crabtree, Butler; alternate, Dr. H. A. Rhoades, Foster.

Our scientific program was brief. Owing to the weather no out-of-town guests had been invited, but we will double our efforts next month, if our hopes are realized, by having a program on pediatrics by the Southwest Clinical Society.

C. W. LUTER, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met at St. Joseph, April 17, 1929.

Dr. F. Gregg Thompson, St. Joseph, read a paper on "Gastric and Duodenal Ulcer." Dr. Thompson discussed the physiology of peristalsis in the stomach emphasizing the importance of the two nodal centers controlling rhythm of peristalsis in relation to location of ulcers, and the surgical procedure to be followed. The physiology of gastric secretion was taken up. It appears that the long established theory of Cannon concerning the mechanism controlling the relaxation of the pyloric sphincter has been found wanting by many present day investigators. Different types of operation for gastric and duodenal ulcer were discussed and illustrated by lantern slides. Treating perforating gastric and duodenal ulcer without drainage even in the presence of a general peritonitis is now considered good surgery by many, the peritonitis usually being of a chemolytic nature and not the infectious type.

Dr. Thompson's paper was discussed by Drs. Potter, Bell, Forgrave and Lau.

T. L. HOWDEN, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The April meeting of the Clay County Medical Society was held at Excelsior Springs, April 25, 1929, in the Royal Hotel Club dining room. A six o'clock dinner in the noted eating house was first in order, with members and their wives seated at the table. After dinner the Women's Auxiliary held a social and fraternal conference, apart from the men.

Dr. Y. D. Craven, Excelsior Springs, presided at the scientific session. Each member reported "my most interesting case within the last sixty days." These reports were very interesting to all present.

Dr. E. C. Robichaux, Excelsior Springs, opened the program with a case of a morphin habitue, who partially "worked" the doctor with a most unusual proposition. The patient carried a letter from his sister who was a registered nurse; she had scraped together \$250, which she would place in the bank to the doctor's checking account, provided he wrote her special delivery that the brother was ready for the sanitarium treatment. Dr. Robichaux promptly made arrangements at the sanitarium and wrote the letter to the willing sister. In the meantime, a grain and a half would tide the patient over till the money came. . . . the chapter then ended abruptly. The money never came—the special delivery letter will be returned later.

Dr. C. H. Suddarth, Excelsior Springs, exhibited a collection of remarkable X-ray pictures, (the best that has yet been presented to our Society). One was the case of a man with an immense aortic aneurysm who had previously engaged one of our notorious advertising quacks to cure him in two weeks for \$200! The poor fellow soon found out his mistake after spending \$100.

Dr. Suddarth gave us an intensive study of the dilated stomach and renal pathology with ureteral catheters in situ. He also reported a fractured lamina of a cervical vertebra of a caddy who had encountered a golf ball that should have whizzed by. We may ask the doctor for a further demonstration at some future meeting.

Twenty-three members have paid dues; nine remain unpaid. Our finances are sound and our loyalty to the profession is unshakable. We are sorry for absentees in our meetings.

J. J. GAINES, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The regular meeting of the Jasper County Medical Society was held April 16, 1929, at 8:00 p. m. in the Y. M. C. A. rooms with Dr. E. D. Hatcher, Carthage, presiding. The minutes of the last meeting were read and approved. There were eighteen members and eight visitors present.

Dr. Otto T. Blanke, formerly of Columbus, Kansas, presented a transfer card from the Cherokee County (Kansas) Medical Society. Dr. Blanke was elected a member and the secretary was instructed to inform the Cherokee County Society of this action. The secretary was instructed to write the Secretary of the State Association inviting that body to hold the 1930 State Meeting in Joplin.

Dr. Rex L. Diveley, Kansas City, was introduced and spoke on "The Management of Anterior Poliomyelitis in its Acute, Subacute and Chronic Stages." Dr. Diveley went thoroughly into the pathology, diagnosis, and treatment of this disease using a two reel motion picture to illustrate his subject. His paper was thoroughly discussed.

Meeting of April 23, 1929

The Society met at 8:00 p. m. in the Y. M. C. A. rooms. Dr. E. D. Hatcher, Carthage, presided with twenty-seven members and one visitor present. The minutes of the last meeting were read and approved.

Dr. Jabez N. Jackson, Kansas City, the essayist of the evening, talked on "Chronic Appendicitis and Conditions Simulating." He spoke in detail on the diagnosis of appendicitis and gave the differential diagnosis of Jackson's Membrane, Lane's Kink, renal calculi, and other conditions. Dr. Jackson's talk was very practical and his presence was appreciated by all.

Meeting of April 30, 1929

The Society held its meeting at 8:00 p. m. in the Y. M. C. A. rooms with Dr. E. D. Hatcher, Carthage, in the chair. The minutes of the last meeting were read and approved. Twenty-three members and three visitors were present.

Mr. Cole addressed the members regarding a contemplated Medical Arts Building.

Dr. C. C. Conover, Kansas City, read a paper on "Acute Rheumatic Fever." He compared rheumatism with syphilis and tuberculosis, showing that aside from the etiology there were many things in common with the three diseases. Dr. Conover recommended large doses of sodium salicylate by mouth or rectum. The subject was well discussed.

H. L. WILBUR, M.D., Secretary.

THE KANSAS CITY ACADEMY OF
MEDICINE

Meeting of March 1, 1929

AORTITIS.—By DR. E. H. HASHINGER.

Luetic aortitis, noted in 6 per cent of all bodies coming to autopsy, accounts for at least 20 per cent of all organic heart disease and occurs in about 70 per cent of all syphilitics. At the Bell Memorial Hospital 40 per cent of clinic patients are negroes, and of the diagnoses of aortitis made there 80 per cent was in negroes.

The diagnostic syndrome is: precordial pain and constriction, cough, loss of weight, nervousness, dyspnea, pain radiating up the neck behind the ear producing dull headache, and nocturnal paroxysms of dyspnea, tachycardia and violent precordial pain. It is not necessary that the Wassermann always be positive or that there be signs of aortic regurgitation. The diagnosis should be made *early*—before

the X-ray or percussion yields positive findings. The most valuable early physical finding is a systolic murmur at the third interspace to the left of the sternum.

Regurgitation and aneurysms may be prevented by prompt conservative treatment in the hands of a cardiologist.

DISCUSSION

DR. SAM SNIDER: I am glad that Dr. Hashinger spoke outside of the textbook and I agree that the earliest sign is a systolic murmur as described. A diagnosis by X-ray is of the dilated aorta; it is then too late to benefit as from treatment instituted earlier. Mercury and iodids should be given in heavy doses. Potassium iodid is better clinically than the sodium.

DR. RUSSELL HADEN: What length of time elapsed between the occurrence of the initial lesions and the development of the aortitis? Willius reported a group of cases in which the interval was about thirty years and only 60 per cent of this group had positive Wassermans. Dr. Joseph Miller told me that the number of positive Wassermans in aortic syphilis at Cook County Hospital is almost the same. This is a rather small percentage and emphasizes the fact that a negative Wassermann should not preclude a diagnosis of aortic syphilis.

DR. P. T. BOHAN: I believe the systolic murmur is due to dilatation of the aorta and not to roughening of the intima.

DR. R. H. MAJOR: Autopsy findings often show errors in the diagnosis of aortic insufficiency. A patient with a history of rheumatic fever, a positive Wassermann, and definite signs of aortic insufficiency, was diagnosed syphilitic aortitis and aortic insufficiency, but at autopsy he had rheumatic aortic insufficiency. Another patient with a history of rheumatic fever, a negative Wassermann, and signs of aortic insufficiency, was diagnosed rheumatic aortic insufficiency. The autopsy showed typical syphilitic aortitis.

In treating these patients, I think potassium iodid and mercury should be given for at least six weeks before salvarsan. Even with small doses of neosalvarsan there is danger of producing angina pectoris when the patient has syphilitic aortic insufficiency.

DR. E. H. SKINNER: Certain early X-ray signs substantiate the diagnosis of luetic aortitis. The course taken by barium in the esophagus may show a slight increase in the right heart shadow in the right oblique position. Measurement of the right and left heart and the cardiac index in the anteroposterior position also yields some information.

DR. HASHINGER, in closing: We found the time elapsed between the initial lesion and the symptoms of aortitis to be about seventeen years, but could get definite answers in only about 40 per cent of the patients. My impression is that an inflammatory process near a sphincter may cause spasticity, which may account for the early systolic murmur that disappears under specific therapy. Flaccidity, later, may account for the diastolic murmur.

NEW TECHNIC FOR EXCISION OF
SIGMOID AND RECTUM CANCERS.—

By DR. HOWARD HILL.

Formerly much drainage was employed. The aseptic method of removal of the rectum is as follows: Through a perineal incision between the anus and scrotum a long clamp is introduced into the peritoneal cavity where the sigmoid is clamped off. Through an abdominal incision a second clamp

is applied above this one and the gut severed with a cautery. The distal segment is then pulled out through the perineal wound, being dissected widely and removed together with the coxyx. The proximal stump is fixed to the abdominal wall and drained, and tubes are left in the perineum for two weeks.

DISCUSSION

DR. T. G. ORR: Dr. Hill's idea is excellent. I have used the Payr clamps, severing the gut between with the cautery and inverting the cut ends with catgut. I question the advisability of doing a one stage operation in cases with obstruction because of the danger of peritonitis and shock.

DR. JAS. McVAY: An outstanding factor in such operations is the mortality which was formerly 40 per cent but has been cut down through careful selection of cases and changes in technic to 7 per cent. Investigators recently have tried to build up the patient's resistance to infection by graduated doses of B. coli given intraperitoneally preceding the operation.

DR. HILL in closing:: The operator should guard carefully against secondary hemorrhage in such operations.

TREATMENT OF FIBROSIS UTERI AND CERVICAL CARCINOMA WITH RADIUM.—By DR. E. H. SKINNER.

All patients with bleeding from the uterus after the menopause should be subjected to speculum and bimanual examinations. Radium should not be used promiscuously simply because it controls bleeding. According to textbooks, the earliest symptoms of carcinoma of the cervix are hemorrhage, foul odor and pain, but in fact the earliest symptom is cervical ulceration and occasional bleeding in married women of character who have suffered cervical lacerations. Pain is never present early. Irregular bleeding at the menopause or cervical erosions not responding to local treatment should be viewed with suspicion.

Radium therapy is uniformly successful in hyperplastic endometritis, uterine insufficiency, myopathic hemorrhage, fibroids, fibrosis, which I believe to be various stages of uterine tissue trends. It should be used cautiously and conservatively in menorrhagias in premenopause patients. Pedunculated fibroids and those with pressure symptoms should be excluded. Radium therapy should be administered by expert hands in small doses with due consideration of danger of cervical stenosis. We do not use radium in the cervical canal in nonmalignant cases. The applicator consists of three gold capsules which do away with betaradiation, fitted end-to-end and adaptable to the fundal curve. When in position the radium capsules occupy the body of the uterus and a dummy capsule occupies the canal.

For cervical carcinoma platinum radium needles are inserted clockwise and allowed to remain for twenty-four hours with gold capsules in the uterus.

DISCUSSION

DR. THEO. ASCHMANN: Radium therapy relieves the bleeding from cervical erosions nicely.

DR. HOWARD HILL: The curet should be used freely for diagnostic purposes. A polyp may be found.

DR. J. E. STOWERS: Is radium beneficial if the whole uterine wall is fibrosed?

DR. J. L. MYERS: I think women in the cancerous age should have a regular six month examination.

DR. SKINNER, in closing: There is rarely need for

either radium or hysterectomy for intra-uterine polyp. I have found fibroid uteri amenable to radium treatment and am convinced that as a method of treatment for the conditions described above radium is a conservative measure that will serve to avoid many hysterectomies.

LACLEDE COUNTY MEDICAL SOCIETY

Laclede County Medical Society has elected the following officers to serve during 1929: President, Dr. J. M. Billings, Lebanon; vice president, Dr. J. W. Lindsay, Conway; secretary-treasurer, Dr. J. A. McComb, Lebanon.

J. A. McComb, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society met April 12, 1929, in the first-floor lecture room of the Sisters of St. Francis Hospital, immediately following the regular monthly staff meeting. The meeting was called to order by the acting president, Dr. L. E. Dean, Maryville, at 7:45 p. m. The following members were present: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, C. P. Fryer, C. V. Martin and J. H. Ryan, of Maryville; Dr. C. J. Garding, Conception Junction; Dr. W. M. Hindman, Burlington Junction; Dr. Charles D. Humbert, Barnard. The minutes of the regular meeting of January 11 were read and approved. The inclement weather and bad roads had prevented the Society from holding its regular meetings on February 8 and March 8.

The secretary reported his official correspondence of the past three months.

The results of the Society's recent resolutions concerning the practice of medicine by the directors of physical education at the Northwest Missouri State Teachers College were discussed by Drs. C. D. Humbert, C. T. Bell, L. E. Dean, and C. V. Martin, and much satisfaction from the effects of the adoption of these resolutions was expressed.

The meeting was to have been addressed, by courtesy of the Kansas City Southwest Clinical Society, by Drs. J. Milton Singleton and Walter F. Holbrook, Kansas City, but the speakers were unable to attend.

Dr. C. T. Bell, Maryville, moved that the secretary invite these speakers to present their papers at the May meeting. The motion was seconded by Dr. C. V. Martin, Maryville, and carried.

Dr. C. T. Bell, Maryville, moved that the Society meetings be suspended during the months of June, July and August. The motion was seconded by Dr. C. P. Fryer, Maryville, and carried; hence, there will be no regular meetings after next month until September 13.

Dr. C. J. Garding, Conception Junction, moved that the meeting adjourn. The motion was seconded by Dr. K. C. Cummins, Maryville, and carried at 8:35 p. m.

CHAS. D. HUMBERT, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society has elected the following officers for 1929: President, Dr. J. E. Mitchell, Sedalia; vice president, Dr. Frank B. Long, Sedalia; secretary, Dr. L. C. Edmonds, Sedalia; treasurer, Dr. A. E. Monroe, Sedalia; delegate, Dr. A. L. Walter, Sedalia; alternate, Dr. D. P. Dyer, Sedalia.

L. C. EDMONDS, M.D., Secretary

SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met at Lancaster, April 18, 1929. The meeting was called to order by the president, Dr. H. E. Gerwig, Downing, with the following members present: Drs. A. J. Drake and J. H. Keller, Lancaster; Drs. H. E. Gerwig and J. B. Bridges, Downing. The minutes of the last meeting were read and approved.

The following officers were elected for the ensuing year: President, Dr. H. E. Gerwig, Downing; vice president, Dr. A. J. Drake, Lancaster; secretary-treasurer, Dr. J. B. Bridges, Downing; delegate, Dr. H. E. Gerwig, Downing; alternate, Dr. O. P. Farrington, Greentop.

There was no scientific program but a number of subjects were discussed and several cases reported.

J. B. BRIDGES, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The regular monthly meeting of the St. Louis County Medical Society was held on the afternoon of April 10, 1929, at the First Congregational Church of Webster Groves. The meeting was called to order at 3 p. m. by President A. W. Westrup, Webster Groves, with the following members present: Drs. H. N. Corley, C. L. Davis, C. P. Dyer, C. C. Irick, R. E. Gaston, W. F. O'Malley, and A. W. Westrup, of Webster Groves; J. H. Armstrong and D. Henry Hanson, of Kirkwood; J. D. Hayward, University City; A. W. Koch, Clayton; J. A. Townsend, Eureka; P. R. Whitener, Overland; Garnett Jones and E. E. Tremain, Maplewood; L. C. Obrock, St. Louis. Visitors: Dr. E. A. Scharff, of St. Louis City Hospital, Dr. William A. Smith and Dr. Siebold.

A scientific program consisting of a paper on "Organization and Personnel of a General Hospital" by Dr. E. A. Scharff, was thoroughly enjoyed and appreciated. Dr. Scharff's paper was discussed by Drs. L. C. Obrock, C. P. Dyer, J. A. Townsend, O. W. Koch, R. E. Gaston and J. D. Hayward.

Dr. J. H. Armstrong, Kirkwood, moved that Dr. E. A. Scharff, St. Louis, be endorsed by the Society as full time superintendent of the St. Louis County Hospital, his term of office to start with the beginning of construction. The motion was seconded by Dr. C. L. Davis, Webster Groves, and carried.

Dr. J. A. Townsend, Eureka, moved that a committee of three, one of whom shall be the president, be appointed by the president to meet with the county court and explain the above resolution to the court. The president appointed Drs. O. W. Koch, Clayton, and W. F. O'Malley, Webster Groves, to meet with him before the court.

Mr. Brown demonstrated the use of the electrocardiogram.

E. E. TREMAIN, M.D., Secretary.

16TH COUNCILOR DISTRICT MEETING

The 16th Councilor District including Bates, Barton, Cedar, Dade, and Vernon Counties, met at State Hospital No. 3, Nevada, April 11, 1929. The meeting was called to order by the president of the Vernon-Cedar County Medical Society, Dr. J. W. Dawson, El Dorado Springs.

During the short business session Dr. C. T. McConnell, Richards, formerly of Houstonia, was elected to membership.

A suggestion was made but no definite action taken to unite the five counties into one medical society to be designated as the "Sixteenth Councilor District Medical Association."

The committee on necrology, consisting of Drs. E. A. Dulin, J. M. Yater and Tipton McLemore,

Nevada, was instructed to draft suitable resolutions on behalf of Councilor T. B. M. Craig, Nevada, who departed this life since the last meeting of the Society.

Dr. Frank I. Ridge, President of the State Medical Association, and Dr. G. Wilse Robinson, both of Kansas City, were guests of the Society and presented two interesting subjects.

Dr. Ridge's lecture on "The Climacteric," an old subject and yet new, was a classic, for the doctor brought us many new ideas.

Dr. Robinson chose for the subject of his talk, "Classification of Insanity." This was a real treat for the general practitioner. His lecture was clinically demonstrated, a number of cases of each division being presented.

At six o'clock the meeting and the Women's Auxiliary were the guests of Superintendent Coon and his wife, at State Hospital No. 3. It was readily seen that the host and hostess were no novices for all present were soon made to feel perfectly at home. Many expressed the sentiment that this was the best medical meeting ever held in Nevada.

The following were present: Drs. Frank I. Ridge and G. Wilse Robinson, of Kansas City; Geo. H. Theile, E. N. Chastain, R. E. Crabtree and John S. Newlon, of Butler; W. H. Allen, Rich Hill; J. W. Dawson, El Dorado Springs; H. A. Rhoades, Foster; W. H. Popplewell, Lamar; C. B. Davis, Walker; Carter W. Luter, Adrain; C. T. McConnell, Richards; T. D. Combs, Bronaugh; I. W. Amerman, E. H. Coon, Scott P. Child, E. A. Dulin, E. H. Liston, F. L. Martin, T. T. O'Dell, H. E. O'Neil, T. B. Todd, J. M. Yater and J. T. Hornback, Nevada.

J. T. HORNBACK, M.D., Secretary.

WOMEN'S AUXILIARY**OFFICERS 1928-1929**

President, Mrs. Willard Bartlett, St. Louis.

President-Elect, Mrs. M. P. Ravenel, Columbia.

1st Vice President, Mrs. Harry F. Parker, Warrensburg.

2nd Vice President, Mrs. T. O. Klingner, Springfield.

3rd Vice President, Mrs. M. A. Hanna, Kansas City.

4th Vice President, Mrs. James F. Owens, St. Joseph.

Corresponding Secretary, Mrs. Theodore Pre-witt Brookes, St. Louis.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. W. H. Goodson, Liberty.

Auditor, Mrs. Vilray P. Blair, S. Louis.

Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Hinchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

JACKSON COUNTY AUXILIARY

Mrs. A. W. McAlester, Kansas City, has been elected president of the Jackson County Auxiliary for the coming year. Mrs. McAlester served the Auxiliary very efficiently in the same capacity three years ago.

The Auxiliary has subscribed for 100 copies of Hygeia to be placed in the county schools.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

JULY, 1929

NUMBER 7

E. J. GOODWIN, M.D., EDITOR
1023 Missouri Building, St. Louis, Mo.

PUBLICATION COMMITTEE } T. W. COTTON, M.D., Chairman
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ORIGINAL ARTICLES

ANOXEMIA AND ITS CLINICAL CONSEQUENCES*

C. F. NELSON, M.D.

LAWRENCE, KANSAS

In his recent book entitled "Possible Worlds and Other Papers," Dr. J. B. S. Haldane, of Cambridge University, introduces rather forcefully and somewhat grimly the subject that I have been asked to discuss with you this evening. I shall quote you a sentence or two. "You, reader, will die of oxygen want. Your lungs, your heart, or that part of your brain which controls the respiratory muscles, will cease to play its part in oxygen supply and the energy transformations which make up your conduct will cease."

And truly, if we would fully grasp and appreciate the importance of anoxemia in controlling and regulating cellular oxidations, its significance in health and disease, its universality in our daily life, I can no better begin this paper than by paraphrasing the terse statement I have just quoted. You, doctor, all of us here assembled, and indeed most of the throbbing animal world and all humanity, will die of anoxemia, pathological and clinical diagnoses and pronouncements all to the contrary notwithstanding. Anoxemia is the ineluctable harbinger of man's somatic extinction. The battle of life, for health, for the maintenance of that degree of robustness and vigor which leads to an effective daily living and performance of our duties, may seem in the first instance to concern itself with germ life, with methods of hygiene and with the facts of immunological science; but behind all of these lie the more fundamental chemical reactions which make life itself possible. These concern themselves,

in the first instance, with energy transformations and energy development in the tissues, and these phenomena in turn, as indeed do most of the facts of cellular pathology, relate themselves inexorably to oxygen and to oxygen transport and release. If anoxemia leads to clogging, to fatigue, and to stoppage of the vital machinery, an adequate oxemia must hold promise of hope for the normal vigorous and active life as no other single agency possibly can.

Man has been called, and very truly so, an internal combustion engine with cylinders, pistons and connecting rods of molecular dimensions. He is, in truth, a billion such tiny engines all tied together, coordinated and integrated into one organic whole. These tiny engines move, function and exhibit the various phenomena of life because of the ability of the cells to transform and dissipate energy. Energy comes in the first instance from the sun, but is taken more directly from the great immediate source of energy by which living things exist,—the oxygen reservoir of the air. It is the oxygen molecule in which the energy of life is locked up. When food stuffs are consumed they are first digested and absorbed, later they are assimilated, more or less profoundly, with the irritable and labile colloidal complexes of which protoplasm is made up. The oxygen, after its transport by the hemoglobin of the blood, is absorbed through the capillary wall and finally comes into contact with the cell's protoplasm. It reaches the cell in a very stable and unreactive, so-called katakinetic, form. Cellular hormones in some, as yet not fully understood, way render the sluggish oxygen molecule reactive. It now easily combines with the protoplasm of the cell and in the chemical reactions that ensue energy is transformed and released. These energy phenomena and transformations constitute the act of living; without them there is no life, no thought, no prog-

* Read before the Kansas City Academy of Medicine, February 1, 1929.

ress. Bohr has pictured for us what takes place when the sluggish, inactive, stable, dead form of a chemical compound changes over into the reactive labile or living form. In the stable form the electrons constituting the molecule move about the central nucleus in orbits whose diameters are very small; as activity and lability increase the orbits of the electrons increase in their diameters. The living, or so-called anakinetic form of a compound, is thus distinguished from the stable or katakinetic form by the relative diameters of the orbits of the electrons which make up the molecule. You will forgive me for injecting a theoretical picture into this practical discussion. I have been moved to do so for reasons that are ultimately most practical. Progress comes through the creation of new pictures by the mind. Each faltering step into the unknown must first be visualized before it is taken. The clinician deals, it is true, primarily with the practical facts of medical science. But he too must take his steps into the unknown, guided by the new pictures which he creates for himself. It has been said with a great deal of truth that the physiology and biochemistry of today are the medicine of tomorrow. The science of biophysics must now be added to the list. The progressive clinician really makes these subjects the medicine of today rather than that of tomorrow. It is with this thought in mind that I have ventured to include matter that at first thought may seem wholly irrelevant to the subject under discussion.

There are various ways of defining anoxemia. It may simply be called oxygen want. It has been called a condition of hypo-oxidation of the hemoglobin of the blood—a hypo-oxemia. It may be looked upon as acute or chronic want of oxygen by the tissue cells. It may be called a condition in which the tension or pressure of oxygen, and therefore the saturation of the hemoglobin of the blood, is below normal. Haldane has defined it as "The condition in which the partial pressure of oxygen, or what comes practically to the same thing, the amount of free oxygen in the systemic capillaries, is abnormally low."

Dr. Howard Means has suggested that anoxemia should be regarded as difficult rather than incomplete transport of oxygen; that it should be looked upon as denoting not partial asphyxia but rather as an impending asphyxia. He points out, in support of this view, that observations on the

metabolism of anoxic persons reveal the fact that not only is there no reduction observed in the total oxygen absorption of anoxic individuals, but that there may even be increased oxygen absorptions. We shall see a little later that in anoxemia the tissues suffer, not so much from a lack in the quantity of oxygen supplied to them as from the pressure or tension at which this oxygen is delivered. Barcroft has shown that the amount of oxygen going to the blood is, in absolute units, about three times as large as that going into the tissues; this means that oxygen is generally always plentiful so far as mere amounts is concerned. The matter of its absorption into the tissue spaces is quite another question; for that purpose we must take into consideration not only amounts but pressures. The partial pressure of oxygen, or its tension, is here fully as important, if not more so, than its absolute amount.

Before discussing the factors which lead to anoxemia I should like to call to your mind a few of the elementary facts concerning oxygen and oxygen transport in the blood stream.

Oxygen is carried in the blood in two ways. About .3 cc. per 100 cc. of blood exists in physical solution in the blood plasma. In addition to this, there is normally found in arterial blood from 18 to 22 cc. of oxygen per 100 cc. of blood in chemical combination with the iron containing conjugated protein hemoglobin. Haldane has especially emphasized the importance of the oxygen present in physical solution, because it is this fraction of the oxygen content of blood which reaches the tissues first. In point of fact, all the oxygen combined with hemoglobin as oxyhemoglobin in arterial blood must first be dissociated into oxygen and so-called reduced hemoglobin, and then enter into physical solution in the blood plasma before it can reach the tissues. The oxygen bound with hemoglobin must therefore be considered strictly as storage or reserve oxygen—the wholesale supply, as it were, ready to be retailed to the plasma as the latter disposes of its physically dissolved oxygen to the tissues.

In health a little more than two-thirds (65 to 75 per cent) of the oxygen contained as oxyhemoglobin in arterial blood comes back to the right heart as venous blood. The coefficient of utilization is, thus, in health, only 25 to 35 per cent. In certain pathological conditions the coefficient may be somewhat increased, but under no conditions do we find venous blood consisting entirely of reduced hemoglobin. I should like again to stress this point for it brings out a fact which is exceed-

ingly important for us to keep in mind, namely, that not only must the tissues have oxygen supplied to them but the oxygen must be delivered under a certain head or pressure in order to be available for tissue consumption. This explains, for example, why in pneumonia the inhalation of oxygen gas, with its tension of 760 mm. of mercury if it is effectively given, relieves the existing anoxemia so much more effectively than any possible increase in minute ventilation due to increased respiration or any increase in blood flow to the tissues due to quickening of the circulation.

If normal blood is put into a separatory funnel and a thin film of it thoroughly rotated in the air of the container until it can take up no more, and then this blood is subsequently analyzed for oxygen the amount that has been combined under these conditions with the hemoglobin represents complete or 100 per cent saturation at the existing oxygen tensions of the determinations in question. The figure so obtained is called the oxygen capacity of the blood. If, now, blood is removed from an artery or vein and analyzed for oxygen without coming into contact with atmospheric air so as not to have it either gain or lose oxygen, and this sample analyzed, the oxygen chemically bound is known as the oxygen content. The ratio of the oxygen capacity to the oxygen content gives the so-called oxygen saturation of the blood. Normally this is about 95 per cent, which means of course that normal blood can be saturated, so far as hemoglobin is concerned, to within 5 per cent of full saturation by the air found in the alveoli of the lung. The tension or pressure of oxygen in inspired air is equal to about 150 mm. of mercury. In the alveolar air the tension of oxygen is reduced to about 100 mm. (corresponding to about 14 per cent oxygen) because of the 5 to 6 per cent of CO_2 present in alveolar air as compared with .03 per cent in ordinary air. So effective indeed is the saturating capacity of hemoglobin that symptoms of oxygen want do not become particularly evident until an alveolar oxygen content of about one-half of this amount ($6\frac{1}{2}$ per cent oxygen) is reached.

Instead of speaking of the oxygen saturation of blood we can also speak of its unsaturation; for example, if normal blood is 95 per cent saturated it is 5 per cent unsaturated. Venous blood is 70 to 75 per cent saturated and therefore 25 to 30 per cent unsaturated.

One other fact should perhaps be recalled in this connection and that is the meaning and significance of the so-called dissociation curve of oxyhemoglobin. The dissociation curve of oxyhemoglobin is a graphic representation of the relation that exists between percentage

of saturation of hemoglobin with oxygen and the tensions of oxygen which obtain at corresponding saturations. This curve differs but slightly in normal individuals and is at different times quite constant in the same individual. If we desire to measure the degree of anoxemia which exists in any particular case we can do so either by measuring the oxygen pressure in the arterial blood or the actual percentage of hemoglobin which is combined as oxyhemoglobin (that is its saturation of oxygen). Measurement of the oxygen saturation involves a direct experiment and is therefore usually chosen because it is more easily carried out. Oxygen saturation in turn may be measured either by determining the actual content of oxygen, from blood drawn by arterial puncture, or can be measured in a somewhat less accurate but much easier way by determining the composition of the alveolar air. It is well known that the oxygen pressure in the arterial blood of a normal man is about 5 mm. below that in his alveolar air. By subtracting 5 mm. from the alveolar oxygen pressure and laying the result obtained off on the dissociation curve we can at once read the percentage oxygen saturation of the arterial blood in question.

Types of Anoxemia.—In his presidential address to the Physiological Section of the British Association for the Advancement of Science in 1920, Joseph Barcroft first outlined the three clinical types of anoxemia which we recognize today. These three types he gave the names of anoxic anoxemia, stagnant anoxemia and anemic anoxemia.

In the anoxic type the pressure of oxygen in the inspired alveolar air, and therefore in the arterial blood, is too low. The hemoglobin of the blood can therefore not become saturated or loaded with oxygen to its normal extent. Imagine, if you will, an individual sitting down to eat with plenty of food about him and yet, because of paralysis, being unable to elevate the food to his mouth and you have, somewhat, the condition that obtains pathologically in this the severest of all of the forms of anoxemia. This condition is met with physiologically whenever rarefied air is breathed, as on the top of a mountain, in balloons and aeroplanes. Also normally and pathologically where lung ventilation is imperfect, as in the various types of shallow breathing. It also exists where fluid or fibrin produces consolidation through which oxygen cannot penetrate in sufficient amounts. In this type of anoxemia, as has been suggested, there is no trouble with the quantity of oxygen which the blood contains, but the tension or head at which the oxygen is delivered is in-

sufficient to render it available for absorption into the tissue spaces. A sufficient quantity is of no avail in the face of an insufficient pressure. Barcroft brings out this fact vividly in contrasting his condition under normal atmospheric pressures with that experienced in an experimental chamber containing rarefied air. Out of the air chamber the oxygen capacity of his blood was 17.8 cc. per 100 cc. of blood and the oxygen content 16.9 cc. corresponding to an arterial oxygen saturation of 95 per cent. After five days inside the experimental air chamber (at a pressure of about $\frac{1}{2}$ an atmosphere) the oxygen capacity rose to 20.1 cc. while the oxygen content remained at 16.9 cc., a lowering in the saturation in this case from 95 per cent to 84 per cent. The oxygen content in each case was the same and yet while in the chamber he was what any one would describe as a very sick man. I quote his own words: "Here I am in my normal health. In the chamber I vomited, my pulse was 86, it is now 56; my head ached in a most distressing fashion. It was with the uttermost difficulty that I could carry out routine gas analyses and when doing so the only objects which I saw distinctly were those on which my attention was concentrated." The symptoms experienced by Barcroft in the experimental air chamber are characteristic of those found in mountain sickness or in what has been more recently described as aviator's disease. They affect of course only the unacclimatized individual. After a residence of some duration at high altitudes these symptoms gradually wear off.

The anemic type of anoxemia results when the quantity of functional hemoglobin is below normal. There is in this condition no abnormality of oxygen tension or pressure. The blood has its normal arterial color because the oxygen saturation is normal. The quantity of oxygen delivered is not at fault. We find this condition in the various anemias, in methemoglobinemia and in carbon monoxid poisoning where a part of the functioning hemoglobin has been rendered unavailable because of the formation of a more stable hemoglobin derivative. It is not as severe a type of anoxemia as is the anoxic although seemingly more severe than the stagnant variety.

In the stagnant type of anoxemia the oxygen pressure and the quantity of functional hemoglobin are both normal but owing to the slowing of the circulation enough oxygen does not reach the tissues in unit time to supply their wants. The blood flow is too slow to accommodate the metabolic call for oxygen by the tissues. A large amount of oxygen is removed in the capillaries leaving a venous

blood that is more completely reduced than is normally the case. It is an anoxemia recognized by the oxygen content of the venous blood only. This condition is met with clinically in various forms of shock, in severe hemorrhage, and in various conditions producing congestion and edema due to back pressure of the circulation.

The Causes of Anoxemia.—There are a number of causes that tend to produce lowering of the oxygen saturation of arterial blood. First of all we may perhaps mention a deficiency in the partial pressure of the oxygen in the inspired air and with it the consequent fall of the oxygen pressure in the alveolar air. Symptoms due to this type of anoxemia are seldom made evident before the partial pressure of oxygen in the inspired air falls from its normal value of nearly 21 per cent to about 14 per cent. Since the oxygen tension of alveolar air is about one-third less than the oxygen tension of inspired air it follows that the alveolar oxygen tension drops under these conditions from its normal value of 13 per cent to about half this value, or about $6\frac{1}{2}$ per cent. Tensions of this sort will lower the arterial saturation of the blood from its normal value of 95 per cent to about 80 per cent and lead after some time to all of the symptoms and subjective sensations experienced in mountain sickness or aviator's disease.

A second cause of anoxemia resulting in a lowering of the arterial oxygen saturation of the blood is found in the ineffective distribution of air in the alveoli of the lungs. Keith has shown that during inspiration the lung does not expand evenly and simultaneously in all of its parts but opens up very much like the opening of a lady's fan. In consequence of this the blood passing through the unexpanded parts of the lung will become very imperfectly aerated while the blood passing through the fully expanded portions will be more arterialized than usual. The net result seems to be that the mixed arterial blood is deficient in oxygen and symptoms of anoxemia will be produced.

Haldane has shown that shallow breathing produces anoxemia due to this unevenness of lung ventilation in both normal and pathological individuals. In uncompensated emphysema the emphysematous part of the lung will be supplied with more than its proper proportion of air while the other parts will receive less air. The arterial blood will thus consist of a mixture of over-arterialized and under-arterialized blood with a resulting anoxemia. In bronchitis or asthma the irregular blocking and muscular contraction of bronchi

and bronchioles lead to irregular distribution of fresh air to the alveoli producing in part over-ventilation and in part under-ventilation, and leading very often to the production of moderate and even severe anoxemia.

Haldane has also found that the recumbent position favors the development of periodic breathing and therefore anoxemia. He found in a normal person that the respiration frequency may go from 15 in the upright position to 7 or 8 on assuming the recumbent position, and that as the frequency of breathing diminishes the depth of inspiration correspondingly increases. The net effect of the recumbent position seems therefore to be a tendency to irregular distribution of air in the lung alveoli, and with this a consequent development of an anoxemia. It has been explained as due to the increased resistance thrown on the diaphragm while in the recumbent position, the abdominal viscera normally assisting the descent of the diaphragm in the upright position. Orthopnea is of course a very well known symptom in certain pathological conditions and physicians have long empirically recognized the value of propping patients up in bed to relieve certain forms of respiratory distress. That distress in the recumbent position, in these cases, is due to an anoxemia referable to an uneven lung ventilation, which in turn is probably due to a failing respiratory center, and shallow breathing seems in the light of Haldane's finding in normal individuals quite certain.

A third cause of anoxemia may be seen in certain cases of gas poisoning in which, due to changes in the pulmonary epithelium, there will not be sufficient time for the required quantity of oxygen to pass into the blood. The delayed passage is here probably due to the fact that edema prevents absorption inward at a normal rate. The consolidation found in pneumonia is a case in point. Stadie has shown by direct examination of the arterial blood that an anoxemia varying from normal to 42 per cent exists in these cases. Harrop has shown that a similar anoxemia exists in cardiac cases, especially in congenital heart disease.

As a fourth cause of anoxemia we may mention defects in the charge of available oxygen carried by the arterial blood resulting in abnormally low oxygen pressure in the systemic capillaries. Cases of carbon monoxid poisoning belong in this class. Here exists what has already been spoken of as anemic anoxemia, the oxygen deficiency arising from abnormally low amounts of functional hemoglobin. The less serious but nevertheless formidable lowering in the amount of functional

hemoglobin by the formation of methemoglobin through the use of such chemicals as potassium chlorate, is an example of an anemic anoxemia practically identical to that of carbon monoxid poisoning just mentioned.

As a final cause we may mention the anoxemia due to circulatory difficulty. Weak heart action resulting in arterial hypotension or a failing supply of venous blood to the heart generally results in an anoxemia in the tissues. Causes of this sort lead to the production of stagnant anoxemia and call for the intravenous injection of saline solutions to fill up the veins and bring about suitable filling of the heart.

Of the three forms of anoxemia the stagnant variety is probably least drastic. Barcroft has estimated that the relative prejudice to the tissues in the various forms may be expressed by the following numbers, using 100 per cent as the oxygen leaving the blood to supply the tissues in normal cases, viz., anoxic anoxemia 42 per cent, anemic anoxemia 66 per cent and stagnant anoxemia 75 per cent.

The Effects of Anoxemia.—In discussing the effects of oxygen want we should distinguish clearly between the results produced under conditions of acute and chronic anoxemia. While nothing like a complete statement concerning the effects of acute anoxemia can be made at the present time, it seems safe to say that an acute anoxemia that has not reached the state of unconsciousness is of relatively little importance so far as permanent after effects are concerned. It is interesting to note that, in general, the effects of acute anoxemia simulate a condition of intoxication or drunkenness while in chronic anoxemia the symptoms and effects are characteristically those of fatigue. Attention has already been called to the fact that the brain suffers more acutely and shows its results more promptly than any other tissue. Loraine Smith found that by breathing hydrogen he could wash out the oxygen of his lungs and produce total unconsciousness in 50 seconds.

While the effects of oxygen want are especially noticeable on the nervous system, indications point clearly to the fact that every organ of the body suffers when deprived of oxygen. For example, stoppage of oxygen brings the perfused heart to a standstill; it causes cessation of the flow of urine; it produces muscular fatigue, and may finally cause complete immobility.

Uncomplicated data on the symptoms of anoxemia can probably best be had by noting the effects produced on aviators and scientific workers subjecting themselves to abnormally low oxygen pressures in experimental air chambers. Perhaps the first symptom to make

itself felt is an increase in breathing, both as to depth and frequency. As the breathing increases carbon dioxide is washed out of the lungs and this causes the hemoglobin of the blood to hold more tightly to its oxygen than is ordinarily the case producing, the so-called Bohr effect. Later on periodic breathing of the Cheyne-Stokes type sets in. Cyanosis may or may not appear. There is generally dulling of the intellect and senses, memory is affected, power of judgment is impaired, muscular contraction is affected so that the individual cannot walk straight, and the power of writing is lost. Somewhat later paralysis, first of the legs, then arm and then the head, sets in. The individual may become stubborn and pugnacious, he may laugh, shout, sing, cry or become violent. Finally the senses are progressively lost, hearing being the last to go before unconsciousness sets in. The sense of pain seems to be dulled or lost early. In mountain sickness, which appears some hours after exposure to low atmosphere, another train of symptoms is often observed. In their typical form there is found, nausea, vomiting, headache, diarrhea and great depression.

After severe and prolonged oxygen want the after effects are often of a formidable nature resulting, frequently, in the death of the individual. Thus, in carbon monoxide poisoning there may be, during recovery lasting at times for weeks, marked spastic contractions in the muscles, epileptiform seizures, and various kinds of partial paralyses. At times the patient may linger for weeks in a comatose condition. The body temperature is often irregular, as is every function under the control of the nervous system. There may at times be gross hemorrhage into the brain, and small multiple hemorrhages have also been described. Marked loss of memory, mental incapacity, even mania, may result. In some cases a marked peripheral neuritis has been noted.

The heart also suffers from chronic oxygen want, the pulse becomes feeble and irregular, the heart is at times dilated and blowing systolic murmurs develop. No organ seems to escape the effects of oxygen deprivation. Acute nephritis and gangrene have been known to develop as the result of the bronchopneumonia and edema following cases of gas poisoning. I have already called attention to the fact that chronic oxygen want stimulates fatigue. Sleeplessness or insomnia is often a symptom of mental fatigue and chronic oxygen want. The quality of sleep is not good at low barometric pressures. Summing it all up in a sentence, it may be said that a given strain produces a greater degree of mental fa-

tigue when the oxygen supply is deficient than when it is ample.

Local Anoxemia.—The character of local anoxemia must of course depend upon the organs actually affected. Local anoxemia may result from temporary pressure on an artery. In the brain, pressure of this sort for a comparatively short interval of time often produces symptoms which persist far beyond the time of the actual anoxemia. Muscle weakness, or nerve weakness, may continue for a considerable time due to this cause. Spasm of the blood vessels may similarly bring about local anoxemia leading to serious damage of tissues involved. For example, spasm of the retinal vessels, following heavy doses of quinin, may produce permanent blindness. In Raynaud's disease the tissues of the fingers may finally become gangrenous. Anoxemia resulting from venous obstruction has a marked effect on the permeability of the capillary vessel walls, giving rise to edema with any and all of its numerous consequences. This edema has been shown by Bolton to continue for a considerable time after the obstruction has been removed. In adenoids, due to diminished breathing, a chronic form of anoxemia sometimes develops. It is even possible that indigestion, so-called, very often results from poor gastric circulation. Insofar as this contributes to symptoms produced, anoxemia may be said to be responsible for this condition.

In bringing this hurried discussion to a close I ask myself, what is the central thought which any discussion of anoxemia should bring us? The most pregnant answer I can find comes from the pen of the celebrated Oxford physiologist, Dr. J. S. Haldane, who more than any other can speak maturely and with authority on this subject. "If," he says, "there is only one clinical lesson to be derived from a perusal of this subject I hope it will be that anoxemia is a very serious condition the continuance of which ought to be prevented if at all possible. For it should be remembered, anoxemia not only stops the machinery,—it also wrecks the machine."

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AGRANULOCYTIC ANGINA*

REPORT OF A CASE

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The credit for calling attention to the syndrome known as agranulocytic angina belongs to Schultz¹, who reported a series of cases in

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1922. He called it "Agranulocytosis." It is interesting to observe the increasing number of case reports since that time and one is led to believe that the reason for the apparent increase is because the clinician is on the lookout for a condition which he had not recognized before. In 1924 there were about a dozen cases reported, all being from Germany and Austria. At present there are approximately 160 cases reported. Of these only about 30 are in America the majority being in Germany and Austria. The mortality has ranged from 85 to 90 per cent. The disease occurs more frequently in females, being 78 per cent of the reported cases, and the majority of cases has occurred in those past forty.

In June, 1927, Kastlin² very completely reviewed 43 cases, reporting two cases of his own. Hueper^{3, 4} and O'Connor⁵ report 5 cases in the Mercy Hospital, Chicago, seen from November, 1927, to April, 1928. Trace⁵ just recently reports three cases seen in less than three months. U. Friedemann,⁶ of the Rudolph Virchow Clinic in Berlin, reports 29 cases with six recoveries. There are many others reported and additional cases are being reported frequently.

The disease manifests itself by a very acute onset with sudden rise of temperature and rapid pulse, chills, malaise, sore throat and dysphagia. The throat symptoms and signs may resemble fulminating diphtheria, Vincent's angina, or streptococcic sore throat. There is extreme prostration and toxemia. Jaundice occurs frequently. Death, the usual outcome, is from a terminal pneumonia.

The most striking finding and all important in diagnosis is the blood examination. Here we find a leukopenia with a marked depression or absence of the polymorphonuclear leukocytes and the presence of a relative lymphocytosis. There may be a slight secondary anemia, but there is no hemorrhagic tendency and the blood platelet counts are normal.

The edema, ulceration or gangrene found in the mucous membranes of the mouth and throat usually are seen in the tonsils or pharyngeal wall, or larynx, but may be present in the buccal mucosa, the gums, tongue, palate, nose or in other regions, as the vulva, vagina, intestine or bladder. One case showed necrosis of the skin. The ulcerogangrenous areas are without doubt secondary to the blood changes. These regions, with the omnipresent bacteria, are *locus minoris resistentiae*. The ulcerative sites show a lack of the usual cellular response of inflammation. This same finding is noted in the terminal pneumonia,

where no polymorphonuclear leukocytes are present in the exudate in the lung alveoli.

ETIOLOGY

The etiology remains unknown. Agranulocytic angina is apparently noncontagious. U. Friedemann⁶ thought it might be some endocrine disturbance, and in this connection calls attention to 78 per cent occurring in the female sex. He does not believe it to be infectious, and points out that high fevers are common to diseases of the blood. Some workers feel that the disease is related to the leukemias. Others feel that it is only an expression of a reaction in the bone marrow of unknown etiology but not a distinct disease entity. The majority feel that it is an infectious disease that produces this peculiar destruction of the granulocytes, the bacteria having a special affinity and toxicity to the hematopoietic system. The only experimental evidence is that of Lovett⁷ who isolated *Bacillus pyocyaneus* from the lesions and spleen of a fatal case. The organism has been reported in a few cases. The culture, when injected into the peritoneal cavity of guinea-pigs produced death. There was a marked depression in the leukocyte count and the leukocytes in the peritoneal cavity were found to have undergone degeneration. She believed that agranulocytic angina was a definite clinical entity.

Positive blood cultures have been reported in some cases, viz., streptococcus, staphylococcus, *Bacillus pyocyaneus*, colon bacillus, pneumococcus. Cultures from the ulcerative lesions have shown many kinds of bacteria. All cultures reported probably represent secondary invaders and are not etiological. A large number of cases have been reported as occurring after antisyphilitic treatment with the arsenobenzols. A case recently reported occurred after the inoculation of typhoid vaccine.

The diagnosis is easily made by the blood examination, a leukocyte count and differential count. However, there are many conditions that must be differentiated from true agranulocytic angina, but especially (1) acute leukemia, (2) aleukemic stage of a leukemia, and (3) poisoning with thorium, arsenic, benzol and the Roentgen ray.

In acute leukemia, the leukocyte counts are, as a rule, high—50,000 or over; and a hemorrhagic tendency is usually present at some stage. The lymph nodes and spleen enlarge. There is usually no hemorrhagic tendency in agranulocytic angina.

Aleukemic leukemia with its low count may be difficult at first to differentiate from agran-

ulocytic angina. As the case progresses it will show the high leukocyte count of leukemia. In some cases an autopsy will be the only method of differentiation,—lymphoid infiltrations occurring in the organs.

In poisoning with thorium, arsenic, benzol and the Roentgen ray, one obtains a history of the employment of such agents or exposure to them.

On looking over the literature there seems to be either a confusion or an overlapping of conditions grouped as agranulocytic angina. Some of the cases are identical with the syndrome originally described by Schultz¹. Hueper⁴ attempts to differentiate, by the clinical and pathological manifestations, the true agranulocytosis of Schultz from diseases showing a secondary agranulocytic symptom-complex. The typical blood picture may occur with or without angina.

It is especially in the large group of cases occurring after arsenobenzol administration that some confusion exists. Cases have been reported as arsenic poisoning which show the agranulocytic picture. Benzol poisoning may produce a similar picture. Dodd and Wilkinson⁵ report 28 cases of poisoning during antisyphilitic treatment, some apparently being agranulocytic angina with many cases of aplastic anemia. Several arsenobenzol poisonings are reported as purpura hemorrhagica. Wilson⁹ recently reported a case after antisyphilitic treatment that he calls monocytosis with neutrophilic leukopenia which could easily be called agranulocytic angina.

Under these circumstances, with the evidence at hand that the arsenobenzols may produce poisoning with blood changes showing the agranulocytic picture, the aplastic anemia, or purpura, is it not reasonable to assume that these various pictures represent various degrees of action on the blood and bone marrow? Should we employ the term "essential agranulocytosis" for those cases showing the blood picture yet have no definite etiology? With the above in mind, I do not believe that agranulocytic angina is a distinct disease. There must be some factor, some idiosyncrasy or allergy or possibly endocrine factor that renders the hematopoietic system susceptible to a noxious agent.

TREATMENT

The treatment of this grave condition has been very unsatisfactory. Blood transfusion, streptococcus serum, X-ray therapy, and local treatment of the throat with the usual antiseptics, have been used. It seems that the transfused cases have, as a whole, done poorly. Finnegan¹⁰ feels that transfusion saved his patient.

U. Friedemann⁶ has treated 9 of the 29 cases he reports with minimal dosage of X-ray therapy over the long bones. Five of these 9 cases recovered. In the 20 cases with no X-ray therapy only two cures were reported. The inference is drawn that X-ray therapy is valuable, especially in cases diagnosed early. The dose recommended is 1/20 skin dose through a copper filter, treatment being instituted over the lower extremities.

REPORT OF CASE

F. B., female, aged forty-four, widow. The family history is unimportant. There are two healthy children. No history of any miscarriages. Past history unimportant except that she had a "milk leg" (right) twenty-three years ago after her first child was born. This resulted in an open ulcer on the lower third of the leg which has given her trouble ever since but always healed when she stayed in bed with her foot elevated, the healing occurring with production of pigmented scar tissue. Blood Wassermann always negative. History of sore throats in childhood up to age eleven, when "tonsils were removed." Fifteen years ago she had giant urticaria without any known cause. In the summer of 1928 she had an itchy dermatitis in both antecubital fossae which she felt was due to sea food that had been eaten. This soon disappeared under sedatives, combined with laxatives and forced fluids.

In the first part of December, 1928, she developed a troublesome itchy rash over the neck and anterior upper chest. She had had a strenuous time taking care of her sick mother and therefore inferred that it was her "nerves." She entered the Jewish Hospital on December 16, 1928. On examination it was found that she had lost weight, had a pulse between 100 and 130, a high blood-pressure—systolic 160, diastolic 60,—a definite lid lag, tremor of tongue, fine tremor in both hands. There was some fullness in the thyroid region, especially of the isthmus. The tonsils were somewhat enlarged, but clear. Posterior pharynx clear. Some roughening or harshness of first sound aortic area, with aortic second louder than pulmonic second. The reflexes equal but hyperactive. The EKG showed a simple acceleration. Basal metabolism, December 16, 1928, was plus 53. A seven foot plate showed cardiac measurements within normal limits. Her skin (reported by Dr. Richard Weiss) showed an erythematous and papular dermatitis in irregular patches on exposed areas of anterior thorax skin and neck, with a few excoriations from scratching.

Diagnosis.—Toxic dermatitis associated with hyperthyroidism.

Urine showed a very faint trace of albumin and a few leukocytes. Blood showed a white count of 6,000, red blood cells 5,110,000, hemoglobin, 86 per cent. Differential: Polymorphonuclear 49 per cent; small lymphocytes 50 per cent; eosinophiles 0; large mononuclear 1 per cent. No pathological cells.

She remained in the hospital one week with rest in bed, sedatives and Lugol's solution. On December 22, 1928, her metabolism was plus 48. Her skin had practically entirely cleared. She was kept in bed at home for several weeks, taking Lugol's solution, ten drops three times a day, and nerve sedatives.

Improvement was marked. Pulse rate came down to 80, blood pressure 120 systolic, 70 diastolic. She appeared more composed and stated that she felt

better than she had in months. Metabolism January 10, 1929, was plus 32.

On January 23, 1929, she developed chills and fever, general malaise, with soreness in her throat. She was seen the next day, January 24, when the temperature was 102, pulse 130. Complained of "aching all over," with sore throat. Had a very red posterior pharynx which looked like the ordinary streptococcic pharyngitis. Within three days the tissues of the throat, tonsils, palate and pharynx became edematous, causing great difficulty in swallowing. The temperature continued high—103 to 105 daily. Aphonia and some embarrassment of respiration developed. There was great prostration. Throat culture showed streptococcus in long chains.

She was removed to the Jewish Hospital on January 29, 1929, when 10 cc. of polyvalent antistreptococcus serum was given intramuscularly. Temperature 105, pulse 140, regular; respiration 40, shallow, slightly labored but regular. White blood count 5,300. No polymorphonuclears, lymphocytes 96 per cent, large mononuclear 4 per cent. The platelets seemed normal. Red blood count 4,500,000 with the cells normal in size and shape. Hemoglobin 80 per cent.

Throat revealed two small membranous discrete patches on either side of oropharynx. Tissues of fauces and pharynx thickened and edematous, beefy red, granular. There was edema of epiglottis, ary-epiglottic folds and arytenoids. No marked ulcerations and no gangrenous areas. Urine showed a febrile albuminuria. Blood culture was sterile.

Course.—Patient soon could not swallow water. On February 1 she had a definite icterus shown in skin and conjunctivae. Fluids were given both by hypodermoclysis and proctoclysis. Transfusion of 550 cc. citrated blood on February 1, 1929. Blood three hours before death showed white count 7,100, polymorphonuclears 0, small and large lymphocytes 95 per cent, large mononuclear 5 per cent. Patient went into coma with death the same day.

AUTOPSY BY DR. KENNETH FOWLER

Protocol.—The body is of an obese, white, adult female. The skin and sclerae show a distinct icteric tint. The skin over the breasts presents a blotchy appearance.

In the chest cavity no adhesions are found and no free fluid. The lungs are air containing throughout, with the exception of the posterior portions where there is some hypostatic fluid. In these portions also there is a slight suggestion to the finger tips of a patchy consolidation. The cross sections of these regions bear out this impression. There are small calcified scars in the pleura over the left apex and in the peribronchial glands. Otherwise, the hilum glands show no changes.

The pericardial sac is normal. The heart is of normal size and weighs 250 grams. There are several small subepicardial hemorrhages over the base of the left ventricle. The heart muscle shows no change. The valves are normal. There are several small atheromatous patches at root of aorta. The coronary orifices are patent and no changes are found along the courses of these vessels.

In the abdomen the peritoneal surfaces are smooth. No adhesions and no free fluid found. The liver is slightly larger than usual, weighing 1900 grams, pale and rather friable. The spleen is large, rubbery, and the cut surface is cherry red in color and glistening. The spleen weighs 350 grams. The pancreas is normal. The kidneys appear swollen, the capsules strip easily, leaving smooth surfaces. The cut surfaces are pale, but

the normal markings are distinct. They weigh together 500 grams.

The gastro-intestinal tract is negative except for numerous small submucous hemorrhages 1 to 5 mm. in diameter which were found in the stomach. There was no erosion.

The mesenteric glands not enlarged and their cut surfaces present a normal appearance. The preaortic nodes show no changes.

The bladder, uterus and adnexa are normal.

The marrow in sternum is red in color and seems to be slightly more moist than usually seen. The marrow in the femur is yellow and appears normal for adult tissue.

Microscopic.—Bone marrow: femur, normal fatty tissue with few lymphocytes in a delicate reticulum. Sternum: myelocytes in numbers, nucleated red cells and a few polymorphonuclear cells. Peribronchial glands: healed tubercles. Kidneys: hyperemia of glomerular capillaries. Albumin in tubules and capsular spaces. Interstitial vessels filled with blood. Few scarred glomeruli. Spleen: pulp filled with blood. The lymph follicles seem relatively reduced and sharply demarcated. Liver: fatty degeneration, particularly in peripheral portions of lobules. Heart muscle: normal. Aorta: atherosclerosis. Mesenteric and preaortic lymph nodes: normal. Pancreas: normal. Adrenal: slight hyperemia. Lungs: sections from areas of lobular consolidations. The air spaces are filled with blood. There is some fibrin and in places numerous rather large mononuclear cells. No polymorphonuclears are seen.

Anatomical Diagnosis.—Icterus. Lobular pneumonia (hypostatic). Subepicardial hemorrhages (over base of left ventricle). Submucous hemorrhages in stomach. Fatty degeneration of liver, cloudy swelling. Acute and chronic nephritis. Splenic tumor, congestive. Healed tuberculosis in peribronchial glands.

COMMENT

In the case here reported the bone marrow appears practically normal, whereas in the majority of the cases that have come to autopsy the bone marrow has shown an absence of polymorphonuclears. In this case, polymorphonuclear leukocytes were absent from the consolidated patches in the lung. The normal marrow found in some cases has been explained in that the blood picture might be due to defect in cellular distribution and not to faulty cell formation. Increased peripheral blood destruction could also be an explanation.

I did not know of Friedemann's results with X-ray therapy, but I feel that with early diagnosis this therapy should be preferred. In my patient a definite allergic history is present as well as a distinct hyperthyroidism.

SUMMARY

1. A fatal case of agranulocytic angina is reported.
2. Agranulocytic angina should be looked for in every severe sore throat with high fever that resembles diphtheria, Vincent's angina, or streptococcic sore throat.
3. A leukocyte count and differential count

will show a leukopenia with depression or absence of the neutrophilic leukocytes.

4. Minimal doses of X-ray therapy over the long bones should be tried.

5. The condition does not seem to be a definite disease entity.

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LUNG ABSCESS

ITS DIFFERENTIATION FROM PULMONARY TUBERCULOSIS*

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At first thought it seems that the differentiation of lung abscess from pulmonary tuberculosis should not be difficult. The textbook description of these two conditions leads one to believe they would not be easily confused. However, from a practical standpoint, we find that pulmonary abscess is sometimes diagnosed as pulmonary tuberculosis and that such diagnosis is often made by good diagnosticians. Therefore, we must conclude that at least some forms of lung abscess are difficult to differentiate from pulmonary tuberculosis.

In this paper I shall attempt to give the important points in etiology, symptomatology, and findings of lung abscess and emphasize wherein they differ from those of pulmonary tuberculosis. It must be borne in mind that in speaking of lung abscess I refer to those which do not result from tuberculosis; also that a sharp line is not drawn between pulmonary abscess and pulmonary gangrene. Klein¹ and others believe there is a distinct difference between the two conditions. Others, such as Jermain,² believe that lung abscess and localized areas of pulmonary gangrene are practically identical. My discussion will deal chiefly

with chronic lesions because they are the ones that are most often confused with tuberculosis.

In pulmonary abscess we can usually find a specific cause for the infection. The infectious organisms must come from some point outside the lung tissue. These organisms enter the lung substance, first from within the lumen of the bronchial tree; second, from sources other than this.³

The infections from within the bronchial tree occur in two general ways: (1) Following infectious inflammations involving the respiratory mucosa; (2) following damage to the bronchial tree as a result of aspiration of foreign material.

The most common infectious conditions involving the respiratory mucosa are lobar pneumonia, bronchial pneumonia and influenza. Generally speaking, it is found by most observers that of these conditions lung abscess most often follows lobar pneumonia. The pulmonary abscesses which are most easily confused with pulmonary tuberculosis are those which follow the pneumonias. Therefore, before a diagnosis of pulmonary tuberculosis is made the history should be gone into carefully to find if the patient has had pneumonia and then check over other findings and determine if they are those of lung abscess or those of tuberculosis. Aspiration of foreign material carrying infectious organisms into the bronchi and air vesicles occupy a very important place in the causation of pulmonary abscess and pulmonary gangrene. Such an accident is especially likely to occur during periods of unconsciousness from general anesthesia, alcoholism and cerebral hemorrhage. Operations on the upper respiratory tract or face under general anesthesia are very apt to allow the passage of infected material into the bronchi. The inhalation of foreign bodies, such as pins, tacks, teeth and kernels of grain, if not removed, results in lung abscess or gangrenous lesions.

Next we shall consider the entrance of infecting organisms into the lung substance from sources outside the bronchial tree. They may reach the lung tissue (1) through the blood stream; (2) through the lymphatics from foci outside the lungs; (3) by direct extension from neighboring suppuration; (4) through penetrating wounds.

There is much discussion at the present time as to how bacteria reach the lungs in pulmonary infections, especially in postoperative lung abscess or gangrene. Schlueter and Weidlein⁴ present evidence to show that the organisms are carried from the operative field to the lung by the blood stream. Weidlein and Herrmann⁵ have recently reported experimental work which they think substantiates their belief that the organisms are carried to the lung by the

* Read at the 54th Annual Meeting of the Southwest Missouri Medical Society, Springfield, November 2, 1928.



Fig. 1. Abscess in midportion of left lung following lobar pneumonia. No cavity is visualized. Remainder of lung fields clear. X-ray taken eighteen months after onset of pneumonia.

blood stream. Kline¹ believes the abscess or gangrenous area, as he insists on calling it, is aspiratory in origin and may be prevented by proper oral hygienic or therapeutic measures. Smith⁶ and Kline⁷ were able to produce pulmonary abscess and gangrene in animals by intratracheal inoculations of material obtained from the mouth containing spirochetes, fusiform bacilli and vibriones. From the evidence presented, it appears to be possible that lung abscess following operations on the upper respiratory tract and face may be either aspiratory or embolic in origin, but most often aspiratory. Lung abscesses may develop from a true lymphatic invasion, for example, from ulcerating carcinoma of the esophagus or from a sacculated or interlobar empyema. No instance is found in the literature where lung abscess was caused by organisms carried by the lymphatics from a more distant focus. I shall not discuss lung abscess caused by direct extension from a neighboring suppuration, or those caused by penetrating wounds, as they are of little importance to our subject.

The bacteria most often found in lung abscess and pulmonary gangrene are spirochetes, fusiform bacilli and vibriones. Smith⁶ and Kline¹ believe they are most often the primary infecting organisms. Because of the poor response they obtained to the treatment with arsenicals of lung abscess in which these organisms are found Weidlein and Herrmann⁵ be-

lieve the organisms are probably secondary invaders. The causative organisms in postpneumonic lung abscess are usually the organisms which caused the pneumonia.

From what has been said it is obvious that by careful study we can determine the presence of a possible etiological factor of lung abscess or gangrene which will put us on the alert and possibly prevent us from mistaking lung abscess for pulmonary tuberculosis. It has been shown by Koch, Krause and others that a primary tuberculous focus always exists which does not break down and cause tuberculous disease until later when the resistance of the body is lowered. It follows then that we have no immediate specific cause for a patient being ill with pulmonary tuberculosis as we have in pulmonary abscess.

The symptoms of lung abscess and pulmonary tuberculosis are, in many ways quite similar. In both conditions the patient shows a toxemia which may be slight or profound. The temperature is usually near normal in the morning with an afternoon elevation. In comparing a chart of the temperature, pulse and respiration of a patient with lung abscess with that of one with pulmonary tuberculosis, little or no difference can be detected. Night sweats are likely to occur in both conditions. Hemoptysis is very often present in lung abscess and is another source of confusion because it is most often seen in pulmonary tuberculosis and many authors writing on tuberculosis say it is practically pathognomic of that condition. Lawrason Brown⁹ gives hemoptysis as one of the five diagnostic criteria of pulmonary tuberculosis. He states that pulmonary tuberculosis can be excluded safely only when all five of these data are absent.

When we consider the pathology of lung abscess we can readily see that hemoptysis is apt



Fig. 2. Gangrene of lower right lung. Multiple cavities in gangrenous area.

to occur. As a matter of fact, however, large hemorrhages rarely occur from a lung abscess. The cough of lung abscess is quite characteristic if communication with a bronchus has been established. The cough is paroxysmal and usually large quantities of purulent sputum are expectorated. The amount of sputum depends upon the degree of drainage that is taking place through the bronchus or bronchi. The purulent sputum which may be foul smelling is quite characteristic of lung abscess. If it is repeatedly negative for tubercle bacilli we have a very valuable point in the differentiation of lung abscess from pulmonary tuberculosis. If this sputum is collected so as to prevent contamination from the mouth and throat as far as possible, washed and stained by the Foutana technic, and spirochetes and fusiform bacilli are found we have another point in favor of a diagnosis of lung abscess or pulmonary gangrene. Smith⁸ has found these organisms in large numbers in lung abscess, even when the sputum was not foul.

The abnormalities found by physical examination in lung abscess may be practically the same as are found in pulmonary tuberculosis. They differ, however, first in that they usually are located differently in the lung field and, second, in that they are usually localized. A good rule is, primarily, to consider lesions in the upper half of the lung as tuberculous and those in the lower half as nontuberculous. This rule will not always hold but it gives us a starting point. Lung abscess is sometimes found in the apex but more often in the lower part of the lung. Tuberculous disease is sometimes found in the lower part of the lung primarily, as in basal tuberculosis, but almost always it starts in the upper third of the lung. In lung abscess we most often find a localized area of dullness which usually shows an increased vocal fremitus and whispered voice.

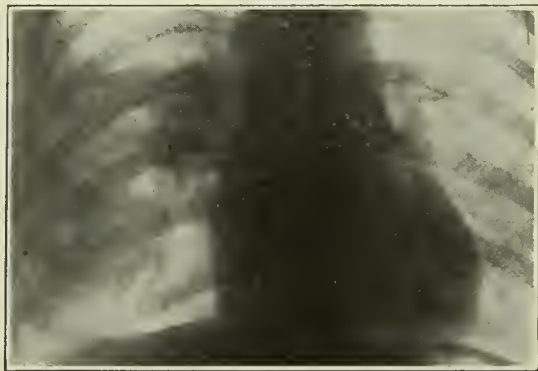


Fig. 3. Basal tuberculosis of right lung with cavity formation near hilus shadow. Differentiation of this case from lung abscess could not be made by X-ray. Many tubercle bacilli in sputum.

There may be physical signs of a cavity. Moderately coarse or coarse, moist rales are usually present. The presence of rales is apt to make us think of tuberculosis since rales are our most reliable sign of tuberculous disease. However, if we remember the pathology of lung abscess we can readily understand that here we have the same condition for the production of rales that we have in tuberculosis. Lung abscess should always be considered where there is a localization of the physical signs with the remainder of the lung fields negative.

The X-ray is one of the most important aids in differentiating lung abscess from pulmonary tuberculosis. A localized area of density seen in the radiograph with the remainder of the lung fields clear is always suggestive of lung abscess. Within this dense area may be seen a cavity which may show a fluid level. In chronic abscess there may be a cavity with a very thin wall, the infiltration surrounding it having been absorbed. Occasionally a foreign body may show up in the radiograph, the abscess having been caused by the foreign body. The intratracheal injection of iodized or brominized oil is of value in visualizing the abscess cavity, especially when the lesion is located centrally and behind the cardiac shadow, as occurred in one of our cases.

Some laboratory findings have already been mentioned. The most important laboratory finding is the absence of tubercle bacilli in a purulent or mucopurulent sputum. Repeated examinations of the sputum should be made, the antiformin method used and a guinea pig inoculation show negative before a negative report on the sputum is given. The presence of spirochetes and fusiform bacilli in the sputum give additional evidence of lung abscess or pulmonary gangrene, as stated above. The presence of elastic tissue in the sputum is of value, because we know there is destruction of lung tissue when the abscess cavity is found. The blood findings are of little value in the differentiation of lung abscess from pulmonary tuberculosis. There may be a leukocytosis, polymorpholeukocytosis or anemia, but these findings are often present in tuberculosis. Cunningham and Tompkins¹⁰ have found that there is an increase in the monocytes as compared to the lymphocytes in tuberculosis. The supravital technic is used in making the counts and is difficult to use as a clinical method.

Just a word as to the treatment of lung abscess and pulmonary tuberculosis. The most important principle of treatment in lung abscess is drainage. The most important principle in the treatment of pulmonary tuberculosis is rest. The above statements explain the importance

of differential diagnosis. Drainage in lung abscess is best established through the bronchoscope. In some cases drainage through the chest wall may be advisable.

Bed rest combined with postural drainage may be sufficient for a cure. Gangrenous lesions do not respond well to drainage treatment according to Kline.¹ Treatment with arsenicals similar to the methods used in syphilis is of value and often effect a cure when the causative organisms are spirochetes and fusiform bacilli.

SUMMARY AND CONCLUSIONS

1. Chronic lung abscess, especially when it follows the pneumonias, is often confused with chronic ulcerative pulmonary tuberculosis.

2. Etiologic factors in lung abscess differ from those in pulmonary tuberculosis and are usually more specific and less difficult to determine.

3. Spirochetes, fusiform bacilli and vibriones are often found in pulmonary abscess and pulmonary gangrene and in many cases are the primary infecting organisms.

4. The symptoms of lung abscess and pulmonary tuberculosis may be practically the same.

5. The physical signs are of the same nature in the two conditions except that they are usually located differently in the lung fields and are more often localized in lung abscess.

6. The most typical X-ray finding in lung abscess is a localized infiltration with or without a visible cavity which is usually located in the lower part of the lung. The intratracheal injection of iodized or brominized oil may be of value in recognizing the abscess cavity.

7. Differential diagnosis of lung abscess from pulmonary tuberculosis is important because the treatment of the two conditions is different.

State Sanatorium.

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INTESTINAL TUBERCULOSIS*

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Any one who is familiar with the management of tuberculous patients can appreciate the extreme frequency with which these patients suffer from gastro-intestinal disturbances. In many instances these disturbances may be explained on the basis of pulmonary activity plus the strict régime to which tuberculous patients are subjected. In a person who is being treated by bed rest with little or no exercise and is instructed to partake freely of rich, nourishing food, it is not surprising that a certain amount of indigestion may occur. If, however, a patient repeatedly presents symptoms of abdominal distress, gas formation, cramping, diarrhea alternating with constipation; or if a patient who has previously gained begins to lose the fight with no appreciable pulmonary developments, one should suspect the presence of an ulcerative condition somewhere in the intestinal tract, because intestinal tuberculosis is the most common complication of pulmonary tuberculosis; it occurs in fifty to ninety per cent of all fatal cases.

The symptoms which we now believe to be those of advanced intestinal tuberculosis were described in very early medical literature, but prior to the age of pathology, and were believed to be the terminal manifestations of pulmonary disease. Hippocrates said, "Diarrhea attacking a person with phthisis is a mortal symptom." A similar view was apparently held for a long time for in 1919 Joseph Walsh expressed the attitude of many tuberculosis workers when he warned the medical profession never to make a diagnosis of intestinal tuberculosis, the outlook being so unfavorable that the patient would likely discontinue all treatment of his pulmonary disease. It was believed by practically all physicians that once the intestinal complication set in all hope for recovery was gone; and if a patient who had such a condition recovered the diagnosis was seriously questioned.

Our clearest knowledge of this condition has been gleaned in the operating room and at the autopsy table. Certain facts are well established concerning its pathology. The earliest lesions are found in the ileocecal region and this region is affected in eighty-five per cent of the cases. Webb and others believe the infection is blood born in some instances, but the greatest amount of evidence favors infection by direct contact with the intestinal contents. It is in the cecum and ascending colon that the contents remain longest and it is this portion which is most abundantly supplied with lym-

* Read at the 54th Annual Meeting of the Southwest Missouri Medical Society, Springfield, November 2, 1928.



Fig. 1. Seven hour plate; cecum and ascending colon empty; absence of haustration in transverse colon.

phatics. Autopsy reports from time to time have demonstrated that intestinal tuberculosis cannot always be recognized during life. Many patients who present no symptoms during life show at autopsy widespread ulcerations; others with marked symptoms show normal intestinal tracts. Engelsmann in a study of one hundred cases found that the correct diagnosis had been made in only thirty-three and that out of the sixty-seven diagnosed as negative twenty-three showed ulcerations. A few years ago, much stress was placed upon laboratory examination of the feces. It was believed that the presence of the tubercle bacilli in large numbers, together with occult blood, constituted a basis for a positive diagnosis. Nussel, in 1923, definitely proved that tubercle bacilli were present in the stools of ninety-five per cent of all open cases of pulmonary tuberculosis, with or without intestinal ulceration. Sahlgren and others have shown that while blood in the stool is significant it is absent in the majority of cases.

In 1911, Stierlin, a German physician, described six cases of intestinal tuberculosis which he diagnosed by means of the barium meal. He was unable to visualize the cecum at times when it should normally have been present. These patients were checked at autopsy and ulcerative colitis was found in each one. A. H. Pirie, working with Archibald, of Canada, made similar observations just prior to the Great War. He studied many cases by means of the barium meal and was disappointed when he was unable to visualize the cecum in some patients known to be tuberculous, although he could always outline the normal cecum and colon. He concluded that the reason he had failed to catch the cecum filled was because it never filled when tuberculous ulcerations were present.

In 1919, Brown and Sampson, of Trudeau, New York, published their original report on,

"Early Roentgen Diagnosis of Ulcerative Tuberculous Colitis," in which they reviewed one hundred seventy-five cases, forty-four of which were positive by the method. These forty-four patients were all brought either to operation or autopsy and all showed widespread ulcerations. Out of the remaining one hundred thirty-one only two showed any ulceration and these were early enough to have reasonably developed the condition later. They based the diagnosis on, (1) inability to find the involved portion filled, and (2) hypermotility of the diseased area specifically and a generalized hyperfunction.

At the Missouri State Sanatorium we have followed the Brown and Sampson technic. The patient is given a meal consisting of barium sulphate 4 oz., sugar, flour and chocolate of each two tablespoonfuls, and milk enough to make 16 oz. The stomach is checked by fluoroscopic examination and plate for record. The patient is given nothing to eat until after the seven hour plate is made.¹

Let us review the normal physiological movement of the intestinal contents as observed by means of the barium meal. The stomach will normally empty itself in from four to six hours. After the barium leaves the duodenum it is broken up and can only be seen as faint flocculent masses in the jejunum. In the jejunum the rate of movement is comparatively rapid and the head of the barium column can be seen in the terminal ileum, between the first and third hours; the contents remain here until they pass into the cecum through the ileocecal valve and the ileum usually is empty after the fifth to the ninth hour. The cecum may be visualized as early as the second hour and by the sixth to seventh hour the head of the barium column may be seen in the region of the hepatic flexure. The cecum remains either filled or partially filled from the fourth to twelfth hour and possibly as long as twenty-four hours. The movement upward through the cecum and ascending colon is passive until after the hepatic flexure has been passed. At this point the contents may be caught up by what has been termed "mass peristalsis," and carried to the distal portion of the colon. If the colon is observed during one of these contractions the haustra cannot be seen but they appear again when the bowel is at rest. Complete evacuation takes place in from thirty to forty-eight hours.

If the barium meal is given to a patient who has a tuberculous ulcerative colitis, an entirely different picture is seen. Fluoroscopic examinations reveal a generalized hypermotility originating in the ileocecal region. The cecum, which appears filled in the normal individual

1. Fluoroscopic examinations are made, when possible, at intervals between the sixth and tenth hours, with serial X-rays on the seventh, eighth, ninth and twenty-four hours.

from the fourth to twelfth hours, does not fill at all in these individuals. Faint traces can be seen in the cecum while the ileum is still emptying, and later one may see barium in the ileum with the distal colon filled and little or no barium in the cecum and ascending colon. As soon as the cecum begins to fill, a contraction is apparently begun which carries the bolus beyond the hepatic flexure. The barium is usually evacuated in twenty-four hours in these cases.

Because of this rapid movement it is impossible to visualize the haustra in the diseased area, although they may be seen in other portions of the colon. This hypermotility not only accounts for the roentgen picture, but produces many of the symptoms which are present when the disease is well established. It is to this phenomenon that we must attribute the diarrhea, cramping, pain and mucous stools which occur late in the disease. Increased peristalsis does not mean that all the contents are carried to the distal colon; we may and do have reversed peristalsis resulting in nausea and vomiting with generalized abdominal distress.

At the Missouri State Sanatorium during the past eighteen months we have diagnosed intestinal tuberculosis only when X-ray findings were present. Many cases which we strongly suspected have failed to show hypermotility and filling defects. Having observed some of these doubtful cases over a period of weeks it is now my personal opinion that none of them have ulcerative colitis.

The cases which have been positive by this method have been treated by artificial heliotherapy. Now, heliotherapy, in the treatment of intestinal tuberculosis, is not new. Rollier began treating his patients by this method thirty years ago, but discontinued it because he was never certain that the condition existed. We



Fig. 2. Eight hour plate; cecum and ascending colon very poorly filled; irregular haustration in transverse colon; evidence of generalized hypermotility.



Fig. 3. Nine hour plate; filling defect still present in cecum and ascending colon; barium in distal portion of transverse colon and in descending colon.

have used the quartz lamp, beginning with exposures of the lower limbs and daily increasing the body surface exposed until the entire body is included. The treatments are begun at a distance of thirty inches for one minute and gradually increased until a maximum of ten minutes at a distance of eighteen inches is reached; in some of the more advanced cases we have covered the chest during treatment. From a symptomatic viewpoint our results have been excellent. I shall briefly review the cases now on treatment.

REPORT OF CASES

Case 1. Male, aged 29, entered Missouri State Sanatorium in May, 1927. Diagnosed far advanced C. Intestinal symptoms began in June, 1928,—prolonged constipation alternating with diarrhea and cramping. Light treatments begun July 18; marked improvement at the end of four weeks. Patient is free from intestinal symptoms now.

Case 2. Male, aged 24, admitted to Missouri State Sanatorium December 7, 1927. Diarrhea, pain and gas formation developed June 1. Light treatments were instituted at once. Symptoms persistent for two months but improved at two and one-half months. At end of five months patient is free from all symptoms.

Case 3. Female, aged 47, admitted to Missouri State Sanatorium March 27, 1928, with marked intestinal symptoms; diagnosed as far advanced C. Having twelve to fifteen stools daily. Light treatments instituted at once. Improvement began only after four months; improvement has been gradual since that time and today the patient has two to three stools daily, normally formed.

Case 4. Female, aged 21, admitted to Missouri State Sanatorium September 15, 1928; diagnosed moderately advanced C; has history of diarrhea alternating with constipation. Light treatments instituted on date of admission and patient has had no symptoms after first month.

Case 5. Female, aged 25, admitted to Institution on May 9, 1928; diagnosed far advanced C. Has a history of gas formation, diarrhea and distress for



Fig. 4. Twenty-four hour plate; practically all barium has been evacuated. (Note evidence of healed tuberculous spine.)

period of months. Light treatments begun and patient has less diarrhea and pain since beginning of treatment.

Case 6. Male, aged 21, admitted to Institution October 19, 1927, diagnosed far advanced A. Developed diarrhea, cramping and abdominal distress in August, 1928; light treatments begun September 1, with marked improvements after one month and patient is free from symptoms now.

While this treatment is as yet empirical its effect on various forms of surgical tuberculosis is well known. That it speeds up calcium metabolism is shown in the study of rickets and tetany. Calcium is sedative to the intestine and is used intravenously in some cases to relieve the distressing symptoms. The ultraviolet light has, in itself, a sedative effect upon the motor mechanism of the gut and it is for this reason that we get early relief from symptoms that are caused by motor spasm and hypermotility. Due to the fact that we have thus far been unable to keep any of our patients sufficiently long to make proper studies we are unable to show any radiological improvement. We hope in the future to follow up these cases and later present our findings.

Today, ultraviolet therapy in intestinal tuberculosis has replaced all other methods and the reports by various tuberculosis workers are indeed encouraging. Brown and Sampson report two hundred forty-two cases on the intestinal complication over a period of nine years. They found some improvement in all except eighteen per cent treated by this method, with approximately twenty-five per cent cures from the radiological standpoint, even in the presence of advancing pulmonary tuberculosis

in some individuals. Erikson reports improvement in symptoms in eighty-five per cent of cases treated by this method. All our cases except one are classified as far advanced, according to the standards of the National Tuberculosis Association. Although the ultimate outlook is not favorable in most cases we feel that treatment definitely prolongs life and gives the patient a better chance of recovery. If the symptomatic improvements were all that one could hope for the treatment would still be justified. As far as we have been able to determine the treatment of these cases by ultraviolet light has in no way altered the course of the pulmonary disease.

SUMMARY AND CONCLUSIONS

(1) Since intestinal tuberculosis is the most common complication of pulmonary tuberculosis, routine roentgenographic examinations should be made on all advanced pulmonary cases who are not showing proper improvement.

(2) In a person known to have active tuberculosis the presence of filling defects in the cecum and ascending colon which remain in seven, eight and nine hour plates, together with general hyperfunction and absence of haustrations, constitute evidence sufficient for diagnosis of tuberculous, ulcerative colitis.

(3) Ultraviolet therapy offers more hope for these patients than any other therapeutic measure advanced up to present time.

State Sanatorium.

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MELANOSARCOMA OF THE CHOROID

WITH EXTENSION INTO THE ORBIT*

REPORT OF A CASE

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The most common types of neoplasms of the choroid are the melanosaarcoma and leukaosaarcoma. The pigmented growth according to Rockliffe predominates in the ratio of eight to one. Ofttimes, it is hard to differentiate between melanosaarcoma and leukaosaarcoma, because growths appearing white macroscopically will be found pigmented upon microscopical examination. A growth which is deeply pigmented while intra-ocular may be unpigmented when it becomes extra-ocular or metastatic. The pigment is usually due to melanin, although in some cases it may be hematogenous.

Systematic writers have classified sarcoma into four periods: First, the relatively quiet period manifesting itself only by retinal detachment; second, the inflammatory or glaucomatous stage, based upon the congestion which the tumor produces in the veins of the choroid and by which increased



Fig. 1. After recurrence.

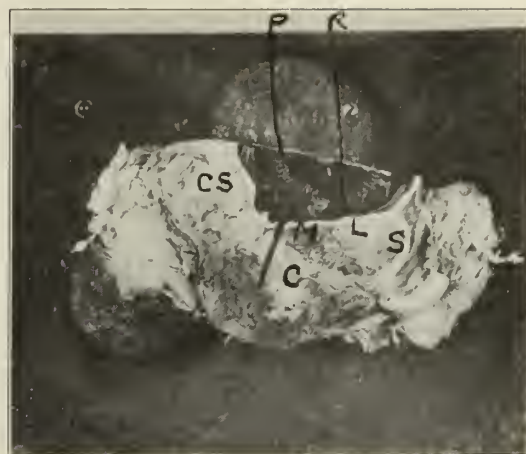


Fig. 2. Section through portion of orbital melanosaarcoma and eyeball, looking anteriorly, showing C, surface section of orbital neoplasm; S, layers of sclera split off from remaining lamellae; L, of sclera; R, retina detached by M black melanosaarcoma of choroid and P, ciliary processes.

transudation of fluids take place into the interior of the eye; third, the extra-ocular stage in which neighboring structures are implicated by extension along any of the channels in the sclera, penetrated by vessels and nerves; fourth, the metastatic stage in which distant organs through embolism are attacked by growths of similar histological character.

The growth which develops from the outer layers of the choroid is usually primary and unilateral. Often it is manifested by the formation of a definite tumor and is designated as the nodular or circumscribed type. However, in rare instances, the growth spreads laterally extending along the perivascular lymph spaces, infiltrating and thickening the choroid. In this case it is known as the diffuse or flat type.

There are certain features of the case about to be presented which warrant special emphasis:

First, the relative infrequency of the flat type of melanosaarcoma. It originated in the choroid with a splitting of the sclera and spreading along the emissary vessels to the adjacent parts.

Second, the extensive involvement of the extra-ocular structures including the orbital wall of the posterior ethmoids and maxillary sinuses.

Third, the recurrence of the growth locally after the exenteration, the radium and X-ray therapy.

REPORT OF A CASE

On April 23, 1928, Wm. B., aged 65, came to the Washington University Dispensary complaining of intense pain in the left eye and temporal region during the past year.

*Read before the Ophthalmic Section of the St. Louis Medical Society, April 12, 1929.

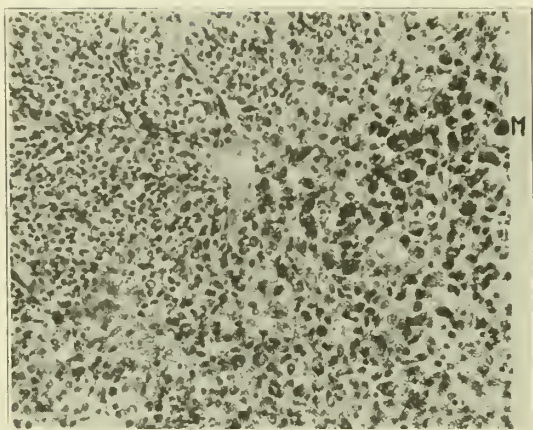


Fig. 3. Section through orbital melanosarcoma showing round tumor cells and at M, cells filled with melanin. (274x.)

Six years ago he was thrown from an automobile, striking his head on the pavement. He did not lose consciousness at the time but became dizzy. The spells of dizziness continued for about six months, after which the left eye became inflamed. Flashes of red fire appeared before the eye, being more apparent at night than during the day. In a short time the vision progressively diminished until it was lost completely six months ago.

An examination of the left eye revealed a moderate exophthalmus. The eyeball was fixed, the conjunctiva was chemotic, the cornea was dull and without reflex, the pupil, about 2 mm. in size, was immobile to light. The anterior chamber appeared shallow and an increase of intra-ocular tension was elicited by the finger test. The lense was opaque. No details of the fundus could be made out with the ophthalmoscope. The vision was reduced to light perception. Transillumination revealed a very faint reflex superiorly and inferiorly but it was negative temporally and nasally.

The right eye was normal externally and ophthalmoscopically and with a plus 1.50 sphere vision equaled 20/20.

The general physical and laboratory examinations were grossly negative, with no evidence of metastasis in the distant organs. The parotid and submaxillary glands were normal in size. The X-ray examination of the skull and paranasal sinuses showed the skull to be symmetrical and the sella turcica within normal limits. There were pronounced diploic markings in the frontal region. The nasal sinuses showed total opacity of the left maxillary and a general haze throughout the left ethmoids. After lipiodol instillation there was an incomplete filling of the left maxillary sinus. Nasal examination revealed a mucopurulent discharge in the left meatus.

On April 30, 1928, under ether anesthesia, an external canthotomy was done, followed by a complete exenteration of the orbital contents, including the periosteum and the lacrimal gland. The orbital wall was found to be eroded over the posterior ethmoids and maxillary sinuses. This erosion in the orbital floor caused a relatively large opening into the antrum. These eroded areas with the invading ethmoid cells were broken down and curetted. After the operation the orbital cavity was packed with iodoform gauze and a pressure bandage applied.

One week later the patient had radium implanta-

tions of 75 milligrams for 24 hours in the orbit, the maxillary and the ethmoids sinuses. Shortly afterward an intranasal antral window beneath the inferior turbinate was made for drainage.

The treatment consisted of irrigation of the cavities with Dakin's solution and later a potassium permanganate solution in alteration. The orbital cavity was tightly packed with vaselized iodoform gauze.

The patient continued to gain in weight, was without discomfort or symptoms of metastasis and the orbital cavity progressively granulated. The contour appeared smooth and the discharge was very much diminished. On Nov. 24, 1928, a superficial hemorrhage was discovered about the inner angle of the orbit which was followed by an exuberant enlargement. This proliferation has been progressive until the tumor now extends to the midline of the orbit. The lateral nasal wall has been pushed outward causing a superficial venous engorgement to be readily seen. The chief complaint at present is a cephalalgia.

Radiotherapy at six weeks' intervals has been given since the recurrence of this neoplasm. (The treatment gives immediate relief of the headache but it is only temporary as the pain returns in about three weeks.)

PATHOLOGICAL REPORT BY DR. HARVEY D. LAMB

*Macroscopic Findings (after formalin fixation).—*The excised mass of tissue containing the eyeball in the anterior portion was roughly spherical and about 45 mm. in diameter. Tumor tissue entirely surrounded the eyeball except anteriorly; below only a thin layer of growth was present. The surface of the growth was grayish-black, rough and lobulated; no capsule was present on the posterior surface. The cornea was considerably overlapped with edematous conjunctiva. The cornea was densely opaque and the anterior epithelium was absent over its center. On bisecting the eyeball and the tumor mass vertically it was found that the cut surface of the growth was compact in texture and grayish-black in color. The sclera and cornea of the eyeball were of about normal thickness. The anterior chamber was apparently of normal depth. The lens was gone (lost in the bisection probably) and no coagula were present in the globe. A thin layer of blackish growth was present elevating the retina in the temporal side of the eye. On incising into this intra-ocular portion it was found lying within a thin thickness of sclera. The tumor getting between the scleral lamellae posteriorly had grown forward splitting the sclera until at the time of the operation thin strips of sclera were found extending temporally at large angles to the sclera proper.

A small piece of tumor tissue from the posterior part of the excised mass was prepared for microscopical examination.

Microscopic Findings.—The neoplasm was composed of dense numbers of small round or oval cells having round or oval light staining nuclei. In a very irregular arrangement many of these cells contained golden brown melanin. Thin strands of connective tissue in some places separated the tumor masses; in some blood-vessels were present. Hemorrhage was present in places and groups of tumor cells containing coarse granules of hemosiderin were found.

Because of the presence of melanin in many of the tumor cells, there can be no doubt that the orbital tumor arose from within the eyeball in the choroid and spread outward along the emissary vessels in the sclera.

Diagnosis.—Small round cell melanosis of the choroid with extension into the orbit.

(a) Small amount of neoplasm within the eyeball and a large amount externally.

(b) Extensive splitting of the sclera.

(c) Hemosiderin granules within the tumor cells.

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THE SURGICAL MANAGEMENT OF HYPERTHYROIDISM*

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Although hyperthyroidism was recognized as an entity early in the nineteenth century, it was not until many years later that surgical measures were definitely proven to be of value. At first, progress in this field was very slow; later, under the leadership of a few surgeons,—notably C. H. Mayo, Halstead, Crile and Kocher,—marked advances were made. With wider experience it became clear that the problem of reducing operative mortality lay, not so much in the improvement of technic as in the further study of the disease itself, and in the control of the postoperative hyperthyroid crises.

Most of us feel that the general term, hyperthyroidism, includes two separate and distinct diseases, namely, exophthalmic goiter and toxic adenomata. However, occasionally the various signs and symptoms are so intermingled that a differential diagnosis is extremely difficult. In exophthalmic goiter we have a hyperthyroidism plus a dysthyroidism, while in the toxic adenomata we are dealing with a pure hyperthyroidism, which can be reproduced experimentally by the administration of thyroxin. The dysfunction in exophthalmic goiter is due to the circulation being flooded with an excessive amount of thyroid secretion, whose thyroid molecule contains an abnormally small quantity of iodine. The overactivity of the gland is indicated by increased vascularity and by hypertrophy and hyperplasia of the epithelial elements.

There can be no standardization of the preoperative preparation of those suffering with hyperthyroidism except as to the fun-

damental principles involved. The method must be adapted to the individual case. Obviously, the more toxic the patient's condition the greater care and time needed for preparation. Experience alone can dictate the time for operation and the type to be done.

In attempting to estimate the operative risk it is always important to consider two additional surgical hazards; first, postoperative crises in acutely toxic conditions; second, respiratory infections in greatly weakened individuals. General debility occurs in two distinct groups; first, when weakness is the result of a recent severe crisis; second, when a long standing hyperthyroidism has produced visceral degenerative changes. The size of the gland bears no definite relation to the severity of the hyperthyroidism; frequently the smallest gland may cause the most severe toxemia, and vice versa. A good index of the activity of the gland is its vascularity, as manifested by large, palpable arteries, thrills and bruits.

The administration of Lugol's solution to exophthalmic goiter patients while being prepared for operation, has resulted in a tremendous step in the progress of surgery in this field, but iodine will not cure exophthalmic goiter. The indiscriminate use of iodine is both dangerous and unscientific. Lugol's solution should be used only in hyperthyroid crisis and as a preoperative and postoperative adjunct. When iodine is administered over a long period with the idea of effecting a cure, the ideal time for operation will have passed when the patient is finally referred to the surgeon because the initial response to the iodine is seldom, if ever, duplicated.

In toxic adenomata the effect of iodine is variable and much less impressive. It should be remembered that the quantity of iodine necessary to bring about a clinical response is much less in these cases than in cases of exophthalmic goiter. In toxic adenomata Lugol's solution is given in small doses for from seven to ten days, and if there is definite improvement the medication is continued; otherwise, it is stopped. The final treatment of adenomatous goiter is definitely surgical and the operation should be done, if possible, before irreparable visceral degenerative changes have occurred. When the thyroidectomy is performed in the presence of broken compensation, with a markedly dilated heart, auricular fibrillation and edema of the extremities, it is attended with a high mortality. Prolonged medical treatment will often establish a

* Read before the St. Louis Medical Society, April 2, 1929.

good compensation and make this patient a much better operative risk.

The exophthalmic goiter patient under medical preoperative care routinely receives adequate doses of Lugol's solution. Within a few days after the iodine treatment is started, the restlessness and emotional instability lessens and a general improvement is noticeable. As a rule, the maximum benefit is obtained within ten to twenty-one days. This improvement is only temporary for if the drug is continued the pulse and metabolism gradually rise after the maximum drop, and the symptoms increase again.

There is a group of late cases, with a moderate or relatively high degree of hyperthyroidism, that are not markedly benefited by the administration of iodine. These patients are generally considered poor operative risks and should have all the preparatory measures continued as long as there is any definite improvement, as manifested either by a reduction of the intensity of the hyperthyroidism or by a gain in weight or general strength. It is in this group that a graded or multiple stage operation is indicated. When the treatment with iodine fails to influence the course of the disease, ligation is equally ineffective. In doubtful risks ligation is occasionally performed, with the idea of testing their tolerance, prior to performing a resection of one lobe. The operative risk of lobectomy is definitely less than that of subtotal thyroidectomy, for the surgical trauma and chance of technical error attendant on the former is just half that of the latter. The two stage resection is also indicated where the goiter is very large and firm and has compressed the trachea, for resection of both lobes might be followed by a sudden collapse of the tracheal walls. Still another indication for the two stage operation is in cases where excessive time has been consumed during the resection of the first lobe, due to technical difficulties, or where there has been undue loss of blood.

When surgery has been decided upon, the patient is allowed to be up and about the hospital for several days before operation, since prolonged rest in bed has a debilitating effect. The night before operation two additional doses of Lugol's solution are given. The operation is performed under combined anesthesia, that is, local anesthesia with as little ethylene or gas oxygen as is necessary to satisfy the individual patient. Since the symptoms of toxicity often occur rapidly after the withdrawal of iodine, it is important that the

iodine be continued during the early post-operative period, and this can be done by adding Lugol's solution to normal saline and administering it as hypodermoclysis. As soon as there is no nausea and fluids are taken freely, the preoperative dose of Lugol's solution is resumed, and is continued until the patient is discharged. After leaving the hospital, gradually decreasing doses of Lugol's solution are prescribed daily for the next six weeks. All patients should be under observation for from six to twelve months, depending upon the degree of toxicity, and all foci of infection should be eliminated within three months after operation.

In conclusion, it may be said that the surgical treatment of hyperthyroidism rests on a definite clinical and pathological basis and that the results more than justify this method of procedure. The use of iodine in the preoperative preparation of patients with exophthalmic goiter has practically eliminated the need of ligations and has greatly decreased the necessity of two stage resections. Most striking results are constantly being obtained by removal of toxic thyroids, and our percentage of cures can still be increased if we will only urge our patients to seek surgical aid early.

Beaumont Medical Building.

PRENATAL PREVENTION OF POTENTIAL HEMMORRHAGIC DISEASE OF NEW-BORN

A biochemical study made by I. Newton Kugelmass and John E. Tritsch, New York (*Journal A. M. A.*, Feb. 16, 1929), of the clotting components of the blood from the second month of pregnancy to term in a woman who had given birth to five infants, three of whom, and possibly a fourth, had had a true melena neonatorum, showed prothrombin deficiency analogous to that observed in true melena neonatorum. Nutritional therapy of the mother throughout pregnancy developed and maintained a normal maternal blood before birth. The fifth pregnancy terminated in the birth of a normal non-bleeding infant. This case is suggestive of the possible value of prenatal treatment in bringing about the physiologic perfection of the new-born.

URETERAL OBSTRUCTION IN INFANCY

Meredith F. Campbell and John D. Lyttle, New York (*Journal A. M. A.*, Feb. 16, 1929), made a study of seventy-four cases of uterine obstruction in infancy. They report that approximately 2 per cent of infants suffer from uterine obstruction which predisposes to infection and renal destruction. That pyuria which resists systematic therapy for more than four weeks indicate complete urologic investigation. With this as the criterion, the authors have disclosed gross urinary tract disease in more than 95 per cent of the patients whom they examined. The same urologic, diagnostic and therapeutic procedure followed in adults should be employed for children and infants except when rendered impossible by the small caliber of the instruments.

WASHINGTON UNIVERSITY CLINICS

RATIONALE OF DIGITALIS THER- APY IN PNEUMONIA

A REVIEW

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Presented before the Senior Class Medical So-
ciety, April, 1929.

Because of its preëminence as a drug in heart failure, it is only natural that digitalis should have early come into use for "supporting" the circulation in pneumonia. There is at present, however, an almost universal lack of agreement as to its usefulness.

In 1891 Carhart¹ raised the objection that the use of digitalis "does not in the least modify favorably pneumonia," that "on the contrary it exposes the patient to the risk of sudden death," and that its use had been one of the causes of the large death rate. Herzig² in 1905 was of the opinion that the beneficial effect of digitalis in pneumonia is due to the production of a leukocytosis.

Sir James Mackenzie³ in 1908 stated: "I have never seen much good follow the administration of digitalis in acute febrile states. The factors exciting the heart, such as high temperature, toxins, or the invasion of the heart by specific organisms, exert an influence over the heart which the digitalis cannot overcome." Gibson⁴ in 1911 expressed a similar view.

In 1915, A. E. Cohn⁵ brought forth electrocardiographic evidence to show that digitalis has an action during fever of a nature precisely similar to that already described in nonfebrile patients, and concluded "that the same sort of support can be given the heart by digitalis during fever as in its absence. That this is the support that the heart demands may be open to question."

Undoubtedly this report gave considerable impetus to the widespread and even routine use of the drug that immediately followed. Thus, in 1916, Meara⁶ stated: "I am more and more convinced that whether the heart be affected or not in a given case of circulatory failure (in pneumonia) the members of the digitalis series are the most valuable drugs under the circumstances."

Cohn⁷ in 1917 found that auricular fibrillation or flutter occurred in 12 out of a series of 123 cases of pneumonia, or in about ten per cent. He considered this sufficient

ground for routinely administering digitalis to all pneumonia patients from the onset of the disease. Cohn and Jamieson⁸ reported electrocardiographic studies showing that "digitalis acts during the febrile period in pneumonia, that it produces a beneficial, possibly a life-saving, effect in cases of auricular irregularity, and that whatever beneficial action it has on the function of the normally beating heart may be expected from its use in the febrile heart in pneumonia."

The opportunity of establishing the routine use of digitalis on a firm basis soon after presented itself with the outbreak of the late war. Accordingly, a series of 871 cases were studied at an army hospital in 1918 by Stone, Phillips and Bliss.⁹ For three months, during which no digitalis was given, the mortality among 213 cases was 25.8 per cent. In the following four months the attempt was made to digitalize thoroughly all cases of pneumonia during the first 48 hours in the hospital, and it was found that the mortality in 458 cases had now become 11.8 per cent. Cases dying of septic complications were excluded, and the remaining deaths were therefore believed to have been associated with cardiac failure. They reported that the two groups of cases were similar in the incidence of the pneumococcic types; and concluded that "the use of tincture of digitalis in sufficient dosage to produce physiologic effect is responsible for a decrease of deaths in this series not associated with empyema or other septic conditions." Incidentally, at about the same time, Graham-Stewart¹⁰ made the statement that "digitalis in pneumonia is useless and worse than useless." He said, "I gave digitalis for six years in a large series of cases, and I can honestly say I never saw one case benefited to the least extent."

Since these reports a great variety of opinions have been expressed in the matter.^{11 to 28} Some have been deduced from clinical studies, some from statistical reviews, others from experimental studies, and still others are obviously only general impressions. Because of their diversity they illustrate the real need for further study of this very important therapeutic problem.

It is a commonplace that statistics are often misleading. Especially is this true in regard to therapeutic methods in pneumonia. As far back as 1871, William Fox²⁹ recognized that "when the natural course and the various relations of this disease are

attentively considered, it is apparent that no malady can be chosen less suited to afford logical proof by means of statistics of the relative value and curative effects of any system of treatment.

"An acute disease with the natural tendency, under favorable circumstances, to terminate spontaneously * * * presents the most singular elements of fallacy in reasoning from the beneficial effects of active medical interference. If to this we add the manner in which its mortality is affected by age, by constitution, by sex, by the presence or absence of complications, and by epidemic conditions,—it would appear a task of the extremest difficulty to collect sufficient data in order to institute a logical comparison as to the relative methods to be adopted for its use."

Andral³⁰ in 1836 and Brandes³¹ in 1858 noted early the great variance in mortality figures in pneumonia from year to year. Statistics in pneumonia are usually available to fortify whatever position one cares to assume. Thus, in the series of Stone, Phillips and Bliss⁹ the mortality per cent of 11.8 is attributed to the routine use of digitalis. In the series of Stone the mortality per cent of 8.7 was also thought to have been kept low by the use of digitalis. On the other hand, 151 cases treated routinely with digitalis in Edinburgh³² showed a mortality of 17.9 per cent.

That a death rate as low as 11.8 per cent, as found in the cases digitalized by Stone, Phillips and Bliss, could have obtained at a similar army hospital without the use of digitalis is indicated by the report of a series of 195 cases from Camp Jackson,—also in 1918. In none of these cases was digitalis used, yet the mortality was only 7.7 per cent.¹⁷ Galbraith³³ describes 50 consecutive cases treated without the use of digitalis, without a single death. Randolph²⁸ reports a series of 100 cases as follows:

30 cases,—digitalis from onset.....	
.....mortality 23.5 per cent	
34 cases,—digitalis later in the course of the disease.....	
.....mortality 23.5 per cent	
36 cases,—no digitalis used.....	
.....mortality 11.4 per cent	

Since statistical evidence in its present amount and character cannot settle the question, it becomes necessary to attack the problem from a different angle; to consider, first, the clinical and functional changes in the circulation which occur in pneumonia; and, second, the possible influence of digitalis in controlling them.

1. *Circulatory Symptoms in Pneumonia and Their Significance. General.*—In the less severe cases of lobar pneumonia the changes in the heart and circulation are no greater than in any febrile process.³⁴ In the more severe and fatal cases, clinical examination may reveal alarming changes in the general picture,—the pulse, blood-pressure and heart. Breathing, difficult throughout the disease, may become shallow, rapid and inefficient. Cyanosis in some degree is almost constantly present. It has already been mentioned that complete irregularity with auricular fibrillation or flutter occurs in a significant number of cases.^{7 9 26} Some form of heart block is not infrequent. In overwhelming infection, the blood-pressure often begins to fall early, the diastolic more proportionately than the systolic. On the other hand, "desperately ill patients may have a fairly high systolic and diastolic pressure up to the period immediately preceding exitus."³⁵ Dilatation is indicated by an increase in cardiac dullness; the heart sounds become less distinct and the apex beat more diffuse. The long diastolic pause is greatly shortened and the sounds, approaching each other in quality and timing, assume a fetal character. When death is near, the heart sounds become still fainter, the pulse more rapid and weaker, and all the signs of a vasomotor collapse may be present: ashy cyanosis, cold hands and feet, clammy perspiration and a sudden drop in blood-pressure. The end may come with tragic suddenness, often within three or four days of the initial rigor.³⁶

When there is much clinical evidence of circulatory failure in severe or terminal pneumonia, it is necessary to remember that tachycardia, dyspnea, cyanosis and, indeed, dilatation of the heart may occur without cardiac or circulatory incompetence. Before deciding to give any cardiac drug one should analyze the various factors underlying each symptom, and inquire what if anything he could hope to accomplish by changing the state of the circulation.

Tachycardia.—This is a normal reaction of the heart to fever and toxemia. In pneumonia there is an added factor of increased functional demand on the heart owing to anoxemia. The decrease in lung area available for aeration of the blood with, perhaps, an atonic state of the peripheral vessels resulting from toxic action on the vasomotor center, conspire to call forth tachycardia as one method of increasing circulatory rate. To slow the heart under such circumstances

might be to remove from the forces of defense of the body a compensatory mechanism designed to meet the demands of the tissues.

It might still appear desirable to increase the period of rest of the cardiac muscle, since any increase in rate is at the expense of the diastolic or rest-period, normally about 13 out of 24 hours.¹⁰ However, the rate in pneumonia is usually not so high, nor is tachycardia present for so long a period that this, per se, should be an important consideration. Another reason for slowing the heart might be to maintain cardiac output, as it is generally believed that tachycardia tends to reduce the period of diastolic filling as well as the systolic output of the individual beats. Henderson,³⁷ however, has shown that up to a rate of 210 the minute volume output increases proportionately with the heart rate. Wiggers,³⁴ who also believes that a very pronounced tachycardia does not necessarily produce circulatory embarrassment, concludes from experimental observations that "an increase in heart rate up to 150 per minute causes a decrease in blood-pressure only when it is accompanied by a significant depression of contractility." Lewis³⁸ reports a case in which a ventricular rate of 290 in a child caused no circulatory embarrassment.

In the ordinary case of pneumonia, it would therefore appear unnecessary and perhaps meddlesome to attempt therapy directed at the tachycardia itself. When auricular fibrillation or flutter develops during the course of pneumonia, the administration of digitalis should be attended by the same brilliant results that are obtained in fibrillation occurring under any other circumstances.

Dyspnea and Cyanosis.—It is necessary to distinguish the dyspnea and cyanosis in pneumonia from that in cardiac disease. "The fundamental fault responsible for cardiac dyspnea is obviously to be found not in the nature of the blood but in the rate at which it is pumped; in the heart itself";³⁹ and the same may be said for the cause of the cyanosis in cardiac disease. In pneumonia on the other hand, there is not only a change in the blood, but there are also several factors quite independent of circulatory failure combining to produce dyspnea and cyanosis.

The oxygen saturation of arterial blood, which is normally 95 per cent, may, according to Cecil, fall to only 75 per cent in severe cases of pneumonia. When the blood of a normal individual is lowered to

this extent by breathing atmosphere low in oxygen the pulse rises from 72 to 120 and the patient breathes with increased rapidity, shallowness, and difficulty. The fever may also be an important contributory factor. According to Du Bois⁴⁰ there is a rise of 7.2 points in the basal metabolism for every degree Fahrenheit of fever. The pneumonia patient with five degrees of fever would, therefore, have to respire sufficiently to accommodate a gas exchange which is some 36 per cent higher than it would be in health. Decreased lung area and pleural pain must obviously contribute to the dyspnea. It is apparent that treatment directed toward improving the circulation could not materially alter these factors.

The Condition of the Heart.—Newburgh and Porter⁴¹ concluded from animal experiments that the heart muscle in pneumonia is essentially normal, and that an impaired myocardium is an infrequent cause of death in this disease. They found that a heart from a case of pneumonia when supplied with normal blood would function normally, whereas pneumonic blood fed to a normal heart was distinctly poisonous to it. Further, they inferred that "in the body during the gradual course of the disease, the blood is progressively affected and the heart muscle gradually adjusts itself to the poison with striking success." Previously, Thorrel⁴² in a review of the literature, expressed the opinion that "from the point of view of pathological anatomy the changes in the heart in pneumonia are insignificant," and Cohn and Jamieson⁸ were of a similar opinion.

On the other hand, Brooks and Carroll¹¹ in a study of 5,000 protocols of cases of the A. E. F. reported that inflammatory or degenerative changes in the heart muscle were present in 45.3 per cent of the cases; and Stone⁴³ in autopsies on 89 cases of lobar pneumonia noted similar changes in 42 per cent. Beside the toxic effect of lobar pneumonia on the heart, there is in rare instances an actual infection of the heart itself by the pneumococcus, taking the form of an acute bacterial endocarditis,²⁷ almost invariably a fatal complication. The degenerative changes noted by Brooks and Carroll, and by Stone, are no doubt largely due to a toxic action,—and we may assume that they are present to a lesser degree in the usual (less toxic) cases.

Dilatation of the Heart.—In lieu of direct methods of measuring myocardial function, changes in the heart size may furnish some evidence of the functional condition of the

heart muscle. Berry⁴⁴ finds dilatation reported in only six out of four hundred protocols. On the other hand, in autopsies on eighty-nine cases of lobar pneumonia, in which digitalis was administered, Stone⁴³ found a dilated heart in fifty-one per cent. Levy,¹⁶ who made "teleroentgenograms" of the heart in twenty-one cases of pneumonia, found that sixty-two per cent showed an increase in heart size during the course of the illness. Eleven of his patients did not receive digitalis, and showed enlargement in seven, or seventy-two per cent of the cases. Ten patients did receive digitalis and showed cardiac enlargement in only five, or fifty per cent. From this small number of cases Levy assumed that digitalis given early in pneumonia prevents dilatation.

The factors involved in the production of dilatation must be carefully considered. Probably those hearts whose muscles are already weakened or damaged by a severe toxemia are more susceptible to other influences tending to produce dilatation. Starling and his pupils have shown that when the work presented to the heart is suddenly increased, the outflow of blood fails for a time to equal the inflow. The heart therefore gradually dilates until a new balance with equal intake and output of blood, but with an increased heart volume, is attained. Starling⁴⁵ has also shown that, within physiological limits, the larger the volume of the heart the greater is the energy of its contraction; and that "the energy of contraction, however measured, is a function of the length of the muscle fiber" (so-called law of the heart). From this it appears that dilatation must be an adaptive phenomenon, increasing a temporarily decreased volume output. Such a dilatation might be termed "physiological"³⁴ and is probably the type that usually occurs in pneumonia. However, when dilatation is not accompanied by increased systolic discharge we have the so-called "pathological dilatation," which occurs when the myocardium is so damaged or atonic that increased length of the muscle fiber exceeds a critical value and can no longer be compensatory. This latter type probably occurs in a heart severely damaged by toxemia, or with very extensive pulmonary consolidation.

Causes of Death in Pneumonia.—Albee²⁶ has said, "We are accustomed to consider the time of exitus as synchronizing with cessation of the heart beat, but that does not mean that the heart is particularly abnor-

mal in the process." White,¹² Cecil²² and others, stress the necessity of differentiating a toxemia with its prostration, tachycardia, dyspnea and cyanosis, from heart failure.

We have noted the work of Newburgh and Porter,⁴¹ which demonstrated that the pneumonic heart in animals is functionally normal; we have indicated that tachycardia is a reaction to fever and toxemia, and that it cannot, per se, be taken as evidence of disease of the heart; that the dyspnea and cyanosis in pneumonia have causes quite different from those of cardiac disease, and that dilatation may occur physiologically and without cardiac incompetence. Systolic murmurs, cyanosis, questionable increase in heart size, small, weak or rapid pulse are, according to White,²⁷ by no means evidence of cardiac damage. Although the presence of myocardial changes at autopsy plus evidence of dilatation has led many^{9 11 16 23} into the belief that death in pneumonia is primarily cardiac, the evidence which has been presented makes it probable that the cardiac factors are remote and that the true causes must be sought for in the vasomotor and respiratory mechanisms.

That respiratory paralysis is the essential factor in fatal pneumonia is the belief of Newburgh, Means and Porter.⁴⁶ That death in pneumonia can at least in part be attributed to vasomotor collapse is the contention of many others (Cecil, White, Luten, Meara, Wynn, Albee, Randolph, et al). The falling diastolic pressure, the moist skin, the gray-ashy cyanosis and the rapid pulse, so often seen in severe and fatal cases, lend support to this view.

2. *The Effect of Digitalis on the Circulation in Pneumonia.*—As has been stated, the former belief that digitalis has no effect on the febrile heart has been thoroughly disproven.^{6 9} Hirschfelder⁴⁷ has also shown that in cats the lethal dose at elevated temperatures is much smaller than at normal temperatures. Hence, if digitalis is to be used in pneumonia, due regard must be given to the increased sensitivity of a febrile heart to the drug.

Its possible toxic action also must not be overlooked. Digitalis is practically useless unless the dosage is sufficient materially to impair conduction. This impaired conduction is itself capable of causing toxic effects (Sollman⁴⁹). While there is a fairly wide margin between the therapeutic and the fatal dose, the therapeutic representing about a third of the fatal,⁴⁸ the experiments

of Hirschfelder noted above suggest that in febrile conditions therapeutic effects are obtained with relatively small amounts and that doses ordinarily considered therapeutic may cause toxic symptoms. Nausea, great malaise and often headache are said to occur early, although in a series of 425 digitalized cases of pneumonia⁹ it is claimed that vomiting occurred in only four or five.

Irregularities of the heart produced by digitalis occur not infrequently. "The most common early effect is vagus stimulation (sinus irregularity). The rate may fall to fifty or even less, so that syncope may occur between the contractions."⁴⁸ Mackenzie in 1905 first noted the tendency of digitalis to produce partial heart-block, and this observation has since been amply confirmed. This may occur with relatively small doses,⁵⁰ and may be permanent.⁵¹ That digitalis may bring on auricular fibrillation where it is used in anticipation of fibrillation is a possibility that has recently been raised by Robinson.⁵²

Effect on Tachycardia.—Because of the slowing seen in animals, and because of the slowing observed in auricular fibrillation in the days when fibrillation was often not recognized as such, digitalis came to be widely used in all cases of acceleration. Thus, Wenckebach⁵³ stated in 1910 that slowing by digitalis is to be expected in the regularly beating heart. Since then, Mackenzie,⁵⁴ Lewis,⁵⁵ Cohn,⁵ Eggleston,⁵⁶ Robinson⁵² and many others, have stated that slowing is not a therapeutic action of digitalis when the normal rhythm is present. Mackenzie and Lewis limit the action of the drug in slowing the heart almost entirely to auricular fibrillation.

From this evidence we can assume that no slowing should be expected in pneumonia except where fibrillation intervenes. That this is correct is indicated by a series of 334 digitalized cases of pneumonia⁴³ in which no slowing was observed. It seems, therefore, that the use of digitalis to slow the regularly beating heart in pneumonia is unwarranted, first, because there is no indication for this (*vide supra*), and, second, because slowing is rarely observed in the heart whose rhythm is normal.

Effect on Blood Pressure.—While a rise of blood-pressure through digitalis is often seen in animals, no rise occurs in man in either health or disease;^{48 54 57 58 59} indeed, even a decrease in diastolic pressure in cases with normal rhythm has been observed.⁵⁹ We have already noted that the

blood-pressure in the usual case of pneumonia does not materially change. In the severe and fatal cases, however, where the blood-pressure often does fall markedly, it is very doubtful whether digitalis can be of any value since the drop is probably due either to myocardial damage by toxemia or to vasomotor paralysis.

Effect on Tone, Contractility and Volume Output of the Heart.—Conservative observers are of the belief that the only indications for digitalis are two, viz., tachycardia due to auricular fibrillation and decompensation. There are some investigators who assume that the effects on the myocardium produced by digitalis in the decompensated heart can be utilized in "strengthening" the heart in pneumonia. Such effects are supposed to involve the cardiac properties "tone" and "contractility."

It is to be deprecated, however, that all too often results obtained in experiments dealing with one or more of these so-called "heart-properties" are unqualifiedly assumed, *a priori*, to show that the heart could be strengthened, sustained, stimulated, its volume output increased, etc., if the heart's "properties" could be augmented by digitalis. For we must remember that no one has ever shown what mechanism is responsible for the beneficial action of digitalis except in auricular fibrillation. Those who give digitalis in pneumonia to increase minute volume output not only must bear this in mind, but also they must not lose sight of the fact that it is even questionable whether digitalis actually can increase cardiac output.

Most pharmacologists are agreed that digitalis produces increased tonicity and increased contraction of the muscle with "more powerful and more prolonged contraction"; and Schmoll⁶⁰ believed that "it is its influence on this vital function of tonicity which has given digitalis its unique position in the therapy of cardiac disorders." Tonicity may be defined as the power to retain a certain amount of contraction even when active movement has ceased, and implies a decreased length of muscle fiber. This means a decreased heart volume and, other factors constant, a decreased minute volume output.

Hirschfelder⁶¹ has seen decreased outputs in hearts previously dilated by occlusion of the aorta and, as mentioned, Levy¹⁶ found in a short series of pneumonia cases that dilatation of the heart was less frequent in those patients to whom digitalis was given

than in those who did not receive it. These effects appear to be compatible with an increased tonicity of the cardiac muscle.

Gottlieb,⁶² Schmiedeberg,⁶³ Cushny,⁶⁴ and Cohn and Levy⁶⁵ hold that increase in volume output occurs mainly through increased force of contraction. Cohn and Stewart⁶⁶ found that within the first 24 hours digitalis decreased the cardiac output of normal dogs, but the cardiac output at any later instant is increased over the normal. According to them, this increase is the net result of the working of two opposed effects of the drug, one that tends to diminish cardiac output,—increased tonicity; and one that tends to increase it,—greater force of ventricular contraction. They believe that if the cardiac size is not smaller than a critical value, increase in ventricular contraction overbalances decrease in size so that cardiac output increases beyond the beginning value. This, of course, is only conjectural, and as Cohn had previously stated,⁵ "if digitalis increases the ability of the ventricles to pump blood, it does so by a means which is more subtle than can be distinguished by our methods."

As a matter of fact, Harrison and Leonard⁶⁷ have recently found an average decrease of approximately 25 per cent in the cardiac output per minute in dogs after the administration of therapeutic doses of digifolin, which they believed was primarily due to an increased tonicity of the heart muscle. The use of digitalis to increase cardiac output in the pneumonic heart is therefore on a very uncertain basis.

Routine Use of Digitalis in Pneumonia.—Brooks and Carroll¹¹ believe that "in pneumonia we are dealing with an acute initial maximal right heart strain plus a sharp narrowing of the factor of reserve in the pulmonary circuit, superadded to a degenerated condition of the muscle consequent on the toxemia," and that since signs of right heart failure may be absent up to the moment of death due to the narrow margin of reserve force which the right heart possesses, treatment must be in large part by inference and must be instituted early in anticipation of failure.

We have already noted that dilatation within physiological limits is an adaptive phenomenon in the usual case of pneumonia, making the heart a more efficient pump. In the severe cases, where the damaged heart tends to enlarge beyond these limits, digitalis, while enabling the fibers to draw on their reserve force by raising the strength of their contraction, does not

raise the limit strength, and, as Hirschfelder⁶⁸ points out, when that limit is already approached digitalis may spur the fibers too far and drive them to overstrain and death.

Those who give digitalis routinely must also realize that they are adding a potential poison of uncertain strength to a system already intoxicated. Finally, the routine use of digitalis is to be deprecated on the general principle that "a drug is not to be prescribed until some special indication for it appears." (Cushny.⁶⁴)

SUMMARY

1. The rationale of digitalis therapy in pneumonia cannot be based alone on statistical studies, on clinical impressions or on pharmacological observations. An evaluation of the evidence derived from all three avenues of approach is necessary.

2. Clinically, most of the symptoms which could be classified as circulatory, tachycardia, cyanosis, dyspnea and cardiac dilatation, are due either to physiological response or to causes other than cardiac.

3. The use of digitalis in pneumonia to lessen tachycardia, to raise a fallen blood-pressure, or to increase the minute volume output of the heart is on a very uncertain basis.

4. The evidence available at present does not justify the routine use of digitalis in pneumonia.

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A SPECIALIZED TYPE OF MUSCLE IN HUMAN PREGNANT UTERUS

J. Isfred Hofbauer, Baltimore (*Journal A. M. A.*, Feb. 16, 1929), calls attention to certain characteristics of the uterine wall that were established after twenty-six uteri obtained during the various months of pregnancy had been studied. Emphasis is laid on the development in the outer layer of a specialized structure, whose typical microscopic features are in marked contrast with the rest of the uterine muscle and closely resemble the Purkinje system of the heart. It is possible to distinguish the fibers of this specialized system simply on the basis of their microscopic appearance, and it is probable that such histologic modifications must be associated with a corresponding difference in function. Since the cell under consideration is of greater diameter than the ordinary uterine muscle fiber and is conspicuous by its histologic character, its presence in the deeper muscle layers can be ascertained without difficulty. Accordingly, cells of the specialized type may be seen permeating the muscle stratum beneath the vascular layer either as a few isolated elements or more often grouped about the periphery of the muscle strands. When cross sections were examined through the entire thickness of the uterine wall, the presence of a thin longitudinal bundle of these cells was distinguishable in the upper two thirds of the uterine body, and interspersed between ordinary muscle strands at the margin of the uterus. Moreover, microscopic study revealed the occurrence in deeper muscle layers in the lower part of the posterior wall of the uterus of two thin longitudinally arranged bundles, which connect the lower pointed end of the formation on the posterior uterine wall with the macroscopically visible white zone in the lower uterine segment in the region of Douglas' pouch. No study has as yet been made of the nerves; however, the bundles of the specialized system within the posterior wall of the lower uterine segment and at the margin of the uterus lie in close proximity to nerve fibers. Impairment of the functional integrity of the specialized system apparently interferes with the coordinated rhythmicity and contractility of the pregnant uterus. The fact that in severe cases of premature separation of the normally implanted placenta, when the uterus fails to contract or to respond to any stimulant employed, these fibers are dissociated by hemorrhage would seem to lend support to this view. The further fact that defective development of the specialized system was observed in a specimen obtained from an elderly primipara can also be interpreted as affording presumptive evidence in favor of a correlation of this phenomenon with the incidence of inertia uteri, so frequently seen in such patients. Hofbauer is inclined to assume that the specialized system of the human pregnant uterus may represent an analogue of the His bundle in the heart. Located on the surface of the pregnant organ, it is placed in the most advantageous position for the quick distribution of an impulse to the uterine muscle, the wave spreading from without inward. The evidence at hand tends to show that the development of the fibers is demonstrable from the fourth week of pregnancy, while by the middle of the process the structure has become well established. It is interesting to note that in the premenstrual period the muscle fibers of the outer layer show a definite swelling of their cytoplasm.

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THE JOURNAL

OF THE

Missouri State Medical Association

JULY, 1929

EDITORIALS

WENZEL CARL GAYLER, M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL
ASSOCIATION 1929-1930

Dr. Wenzel Carl Gayler, St. Louis, our new President-Elect, is a native Missourian, born in St. Louis in 1876. His father, Carl Gayler, now in his eighty-third year, is a bridge engineer of national reputation. He is the only surviving civil engineer who assisted Captain James B. Eads in the construction of the Eads Bridge at St. Louis. His mother was a member of the von Rotteck family of Freiberg, Germany.

After graduating from the Beaumont Medical College in 1901, Dr. Gayler served a short internship in the City Hospital, St. Louis, and a much longer period in the Frauenklinik et Tuebingen. Upon returning to St. Louis, he entered general practice but always manifested a particular inclination toward gynecology and obstetrics. Dr. Gayler has always been considered a good student and interested himself in those studies for which he had a particular liking. This habit naturally led him to a close study of gynecology and obstetrics, even while he was engaged in general practice. He has always contended that a busy obstetrician has a more restful life than a general practitioner, even though the latter has but a small practice.

For many years Dr. Gayler was assistant to Dr. Walter B. Dorsett in the gynecological department of St. Louis University. After the death of Dr. Dorsett, Dr. Gayler was placed in charge of the gynecological out-clinic, a position he held for about twelve years.

He has a wife and two young daughters.

Dr. Gayler early manifested his interest in organized medicine and shortly after returning from his studies abroad he joined the St. Louis Medical Society and interested himself in its activities by faithful attendance at the meetings and readiness to serve the Society in its various activities. He was a member of the program committee of the local Society for several years, vice president for one term, a member of the Council for six years and a delegate to the State Medical Association meetings. He has attended nearly all the meetings of the State Association and was elected vice president for one term,

later being appointed a member of the program committee, which office he filled satisfactorily for several years, and was Councilor for the 20th District from 1927 to 1929. During the World War Dr. Gayler enlisted in the Medical Corps of the Army and received a commission with the rank of Captain.

Under Dr. Gayler's guidance we feel sure that the aims and purposes of organized medicine will be harmoniously and successfully prosecuted.

THE CASUAL OBSERVER AT SPRINGFIELD SESSION

To the "casual observer" the meeting of the Missouri State Medical Association held at Springfield, May 13 to 16, appeared to be one of the most successful ever held. The famed hospitality of that Ozark town stood forth in a boldness that urged the visitor to request something which it could not supply.

"Playing host" is sometimes a difficult role, but to those in Springfield it seems to be an easy thing. They are, as it were, to the manner born and entertain so graciously, so genuinely, so effectively, that one knows they sincerely delight in doing so.

The town out-did itself in courtesy and considerateness for the needs and desires of those who were fortunate enough to attend the meeting. In brief, the city was turned over to the visitors, and, speaking for at least one, this casual observer will confidently say that the attitude of our colleagues in Springfield was appreciated.

These yearly meetings are becoming more and more important in the lives of medical men of the state. Interest in the activities is growing so that the men feel that they have missed a very valuable phase of their medical life if they are unfortunate enough to miss a session. This interest on the part of the members is becoming more apparent each year and is manifested by the attendance and by the character and reception of the scientific papers.

"Nothing succeeds like success" and the success of the Annual Meetings is due to the fact that the members who attend feel that their time has been well spent, that they have received from the sessions something of value. This, after all is said, is the primary object of these meetings, other secondary objects flowing from this primary one. If the primary object is not attained the effect will soon be manifested in decrease of attendance and loss of general interest.

Certain facts about this particular meeting impressed this observer. First of all, the officers of the Association are to be complimented upon the order displayed at the various sessions and the adherence to a strict time sched-



WENZEL C. GAYLER, M.D.
St. Louis
President-Elect 1929-1930

ule. This we feel is always conducive to a much more interesting session. The ambulant or perambulant essayist may have matter of great worth to present, but only the few are possessed of sufficient power to hold the attention of an audience for very long periods of time, and so brevity added to the interest in the essays.

The program was wonderfully diversified and showed an earnest effort on the part of the Program Committee to present a rather complete survey of the medico-surgical fields. We still believe in and thoroughly approve of symposiums and we were justified in our opinion by the arrangement and character of those presented. The interest of the members further justifies this belief. There may be more satisfactory methods of presenting scientific material but we have not seen them.

In such a brief sketch as this it is impossible to critically analyze the entire meeting. Even though it were possible we do not think it would be of great interest, for its length would preclude its being read by many. However, the brevity of this analysis should not prevent us from injecting a modicum of criticism,—constructive 'tis true, but none the less criticism.

One serious defect of this meeting, we think, was the almost complete absence of discussion of the scientific papers. While we are thoroughly aware of the disadvantage of having too prolonged or too numerous discussions in a limited session, a moderate amount of discussion is of value as indicating a healthy interest on the part of the audience. Absence of discussion may mean that the paper is not of such general interest that will admit of discussion, or that the audience is not interested enough to amplify the ideas expressed.

One more suggestion and our strictures end,—the long scientific night sessions should be abandoned. A few carefully selected papers would prove of greater interest and be more thoroughly absorbed. The shorter program would permit of some diversion in the evenings.

There are many points that might be discussed to advantage to the end that these Annual Meetings may be made increasingly attractive to the membership, but space does not permit. We wish to take this opportunity to offer Dr. T. W. Cotton, Van Buren, the present incumbent of the presidential chair, our best wishes for a successful year, and to extend to the President-Elect, Dr. Wenzel C. Gayler, St. Louis, our congratulations on his election to this high office. With the affairs of the Association in such hands the success of its purposes is assured. We may well look forward to a most successful meeting at Hannibal in 1930.

COORDINATE EFFORT IN SCIENTIFIC RESEARCH

Some accomplishments of the concerted drive against tuberculosis by seventeen American Research Institutions were reported May 12 by Dr. Kendall Emerson, managing director of the National Tuberculosis Association.

A new angle of attack is being concentrated by the groups which have joined forces. It is an effort to isolate the specific poison of the tubercle bacillus and find its specific antidote. In this direction the Sterling Chemistry Laboratory of Yale University and the Rockefeller Institute are working on a fatty acid which causes symptoms of the disease.

Only the handling of previously unheard of masses of tuberculosis germs made this discovery possible. Many pounds of them were analyzed at Yale and the results turned over to the Institute for completion of the task so well begun by chemistry. One of the products was a phosphatid, similar to food fats, which caused the formation of characteristic tubercles in dogs upon repeated injection. For control, a germ which lives on timothy hay and is called the timothy bacillus has been developed in a commercial laboratory. It is so precisely similar to the tuberculosis bacillus that there is a possibility of isolating the toxic factor by a comparison of the products of the two germs. The protein fraction of the tuberculosis germ has been crystallized at the University of Chicago, paving the way toward finer precision in the tuberculin reaction.

This cooperative research is sponsored by the National Tuberculosis Association through a special committee on research. Institutions participating are the Universities of Pennsylvania, Yale, Chicago, Vanderbilt, Cornell, Wisconsin, Nebraska, Johns Hopkins, California and Cincinnati, Parke-Davis and Company, H. K. Mulford and Company, Rockefeller Institute, Henry Phipps Institute of Philadelphia, U. S. Hygienic Laboratory of Washington, William H. Maybury Sanatorium of Detroit and the Gaylord Farm Sanatorium of Wallingford, Conn.

The essential part that coordination of effort has played already in these very material results is sufficient indication that a great deal more may be expected. The method of large scale analysis and the new angle of approach which it suggests is fraught with possibilities in other diseases. Coordination is a resource of which science absolutely must avail itself in its hardest problems. It eliminates endless duplication of effort,—endless and, in a matter of so great importance, heartbreaking. Through this coordination the conclusions of one worker may be a ready foundation for the work of

another and his for the work of a third. Thus may arise an orderly structure that will mean the ultimate end of the problem; through lack of coordination we build only a brick pile. Concerted action is coming more and more to the front in the minds of researchers and institutions, and that is a most hopeful sign in this phase of modern medicine.

ST. LOUIS SESSION OF AMERICAN PEDIATRIC SOCIETY

The forty-first annual meeting of the American Pediatric Society was held in St. Louis, May 20-22, with a distinguished group of specialists in attendance and an informative and interesting program. Among the guests of the society were Dr. George F. Dick, of the McCormick Institute for Infectious Diseases, Chicago, and Professor P. F. Armand DeLille, of Paris, one of the ten honorary members of the Society. One of the papers of its first session was read by Dr. Bela Schick, of New York.

Dr. Schick, citing other investigators who had found a decrease in the incidence of diphtheria following tonsillectomy, reported that he had given Schick tests before the removal of tonsils and again six months later. He found that a considerable proportion of children who were not immune before the operation had become immune to diphtheria by the time of the second test. The reason for this he left open to further investigation and explained that his work was preliminary and published at this time only because of the difficulty, in the present active campaign against diphtheria, of finding sufficient non-immunized children to use for the study. He suggested that children applying for immunization be classified, if they showed immunity under the Schick test, as having had tonsillectomy or not having had it, as one possibility of carrying his investigations onward.

Drs. Philip C. Jeans and J. D. Boyd, of the University of Iowa, found that the progress of tooth decay stopped in diabetic children after a few weeks on the type of diets which is now used in diabetes. In further investigations with non-diabetic children, so far as their experiments showed, tooth decay was halted without exception within seven to ten weeks by any diet, including diets abnormally high in fats or abnormally high in sugars if they contained the normal requisite of the vitamins and available calcium.

X-ray examination to determine the conditions and structure of unerupted teeth was recommended by Dr. Frank C. Neff, Kansas City, in rickets and other diseases likely to interfere with calcification of teeth. Dr. Benjamin Kramer, Brooklyn, reported on a series of

delicate micro measurements indicating that regardless of the increase of food lime concentration in the blood by doses of irradiated ergosterol in animals, the concentration in bone composition was not increased beyond a definite point. An attempt to gauge the antirachitic factor in average human milk, and attempts to increase it, were reported on by Dr. H. J. Gerstenberger, Cleveland. He had found a bare evidence of such a factor in the milk of wet nurses whose face, arm and throat were exposed to sunlight for forty-five minutes daily, in an attempt to stimulate the condition of the average American mother in summer time. Attempts to increase the antirachitic factor in the milk of the nurse by sunlight, ultraviolet light, and cod-liver oil obtained scarcely any appreciable results, whereas cod-liver oil, given directly to the infants of course, brought immediate improvement. The only indirect method of treating rickets which showed any clear-cut effect in this series of experiments was in the administration to the wet nurse of enormous doses of irradiated ergosterol.

Certain cases of constipation, among children as well as adults, were attributed by Dr. Richard M. Smith, Boston, to atonicity of the colon. For these he recommended, along with the customary measures, a residue-free diet to further the contraction and restoration to proper tonicity of the colon, instead of the usually favored diet high in roughage.

The society took an excursion into the nebulous realm of the possible allergic diseases with its fourth session at St. Louis Children's Hospital for a program provided by members of the hospital staff. Indications were presented that rheumatism and eczema might be included among these, and one member of the hospital staff showed several records of eczema following colic apparently not due to coincidence.

Evidence favoring the theory that rheumatism is contagious rather than hereditary was presented by Dr. Edith Irvine-Jones. Contrary to the estimates of other workers who had evolved a definite scale of probabilities for the number of children who should have rheumatism, provided one parent or both was rheumatic, she had found that the percentage did not vary among the children of forty-five families under investigation whether one parent, or both, or neither was rheumatic. She found that simultaneous cases occurred much more frequently among children of the same families than among children and parents, and that children who slept together were especially liable to simultaneous infection.

An ingenious method for the restoration of body fluid in very different conditions of dehydration with a single fluid for injection was

described by Dr. Alexis F. Hartmann, St. Louis. In various conditions, he said, varying amounts of chlorids, carbonates, water and glucose might be required. The requirement might be for a great deal of one and very little of the other. The method which he has devised substituted for the carbonate and glucose a lactate which provided the glucose and produced the carbonate. Thus a single fluid might be injected in widely varying conditions of dehydration since, as he found experimentally, the system utilized that part of the injection which it required and eliminated the surplus.

The use of vaccination against scarlet fever and its treatment by antitoxin was discussed in detail at the concluding session by Dr. George F. Dick, who with his wife, originated the test that bears his name. Various serums and vaccines were critically reviewed by Dr. Benjamin White, Director of the Biologic Laboratory, Massachusetts Department of Public Health. Dr. White emphasized the necessity of a high degree of conservatism in the handling of new and comparatively untried serums and vaccines. Among those of undetermined value, he mentioned whooping cough vaccine as "excusable in view of the great temptation to do something for the patient in this disease"; several of the "combined" or "shotgun" vaccines and serums as having no theoretic or practical justification, and vaccines against colds and influenza as having no justification in theory, but in actual experience showing a convincing mass of evidence that they sometimes are productive of very tangible results.

THE LATEST "DIPLOMA MILL"

The shocking facility with which qualified persons can obtain licenses to practice medicine, by the aid of lawyers after physicians duly authorized to pass on their qualifications have turned them down as unfit and incompetent is illustrated in the latest "diploma mill" scandal. Five men were arrested June 14 upon indictments returned against seven at Chicago. A national organization for the bartering of faked medical licenses and reciprocity letters, with headquarters at the Illinois State capital, was indicated by arrests in Springfield, Chicago, New York, and St. Louis. The St. Louisan was Dr. Robert Lentine, practicing medicine under a court order issued by Judge Henry Westhues in Cole County Circuit Court last January, five years after Lentine took his examination and was held unqualified by the Board of Health.

Possible implication of officials in the Illinois Department of Registration was suggested by Pat Roche, chief investigator for the Cook County State's Attorney. Harry Goldstein,

known also as "Senator" Browsky, was arrested at Springfield, Ill., in the act of giving a medical license to Albert Karl Barron, believed to be his intermediary in transactions with applicants, for \$1000. Roche reported that Goldstein, when arrested, made the remark, "Well, you got me. But remember, I didn't get all the \$1000 that came to Springfield." Springfield, of course, is the headquarters of the state offices.

Another St. Louisan, Dr. W. C. Stallmann, is reported to have told the Illinois registration department that he paid \$1500 to Goldstein for a physician's license. With his apparently authentic credentials he was able to obtain an internship at the Deaconess Hospital in St. Louis and held the position until two months ago although he was not licensed by the State Board of Health. The fraudulent character of the license was discovered by a member of the hospital staff which resulted in Stallmann's dismissal.

Dr. Marcus Kalmus, of New York, was arrested in Pittsburg, and L. Mitchell Blaine in Chicago, where Peter Marcia and Henry Granger are sought under other indictments. The organization, Roche reported, lived on graduates of disreputable medical and dental schools and applicants who failed to pass state examinations. The fee was \$3000, he said, for an ostensibly authentic Illinois license and reciprocity letter to enable the applicant to obtain a license in his own state. Some of the documents, Roche observed, seemed to be genuine.

Dr. Lentine, the indicted St. Louisan, has been residing and practicing medicine at "St. Patrick's Clinic," 1902 O'Fallon Street. Monsignor Timothy Dempsey, of St. Patrick's Church, said the "clinic" had no connection with his charities. He had authorized use of the name for a woman who did much charity work several years ago. She left the city and her successors retained the name. He was unacquainted with Dr. Lentine, who, through his attorneys, Maurice J. Gordon and Louis Hudson, issued a statement that he would fight extradition.

Lentine's qualifications for license in Missouri as a medical doctor included study at Manual Training High School in New York, two years of "premedical work" at a New York hospital and a course at the old "P. & S." in St. Louis, which he completed in 1922, the year before the school was ousted in the diploma investigation. He took his examination before the State Board in October, 1923, and was refused a license. Last year he renewed his efforts to obtain a license, and was told that the St. Louis College of Physicians and Surgeons was not accredited. He sued in Cole County Circuit Court, pleading that he passed

the 1923 examination with an average grade of 73 per cent, and on January 3, Judge Westhues issued a writ of mandamus compelling the State Board to license Dr. Lentine.

Here, again, we have an instance of public apathy, or at least the apathy of public officials, toward the danger of authorizing ill-equipped men to dose and carve the public. We have repeatedly called attention to the fact that laymen are entirely defenseless against men who are wrongly labeled "M.D." All the freakish "systems" have their own labels and are limited in forms of practice. When a man goes to a chiropractor he knows he takes his life—or his backbone—into his own hands. But when he goes to a person who has been licensed to practice regardless of lack of qualification, there is no label to warn him. The "Doctor" is labeled "M.D." Such mislabeling may be as dangerous to the public as soda bicarbonate labels on rat poison. The medical profession itself has striven, and is striving, to keep its ranks free of the unqualified. But its efforts can be nullified if apathetic public officials are to override its judgment on who are qualified and who are not qualified.



FERDINAND FOCH

It is most seemly that warm recognition should be accorded the memory of this notable man, and it is most appropriate that THE JOURNAL should grant space for thoughtful retrospect, in particular in view of the fact that a very considerable number of our members had service in France under his command.

The War Department has recorded official recognition and authorized honors appropriate to this distinguished soldier in a General Order, itself such an example of virile construction and informative value that it is embodied herewith:

GENERAL ORDERS,
No. 8WAR DEPARTMENT,
WASHINGTON, March 21, 1929.

I. In deepest sorrow the death of FERDINAND FOCH, the Marshal of France and Generalissimo of the Allied and Associated Armies in the World War, which occurred March 20, 1929, is announced to the Army.

Marshal FOCH was born at Tarbes, France, on October 2, 1851. Before he could enter L'Ecole Polytechnique, he enlisted as a soldier in the Franco-Prussian War of 1870. While Metz was still occupied by the Germans, he completed his studies there. He entered L'Ecole Polytechnique in 1871, from which in 1873 he was commissioned in the artillery. As a captain in 1885 he attended L'Ecole de Guerre, where he graduated fourth in the class of 1887. Most of his service until 1901, as major and lieutenant colonel, was with the general staff and at L'Ecole de Guerre, where he gave the French Army his classical military works, "Les Principes de Guerre" and "La Direction de la Guerre." He returned to regimental duty in 1901 and was promoted colonel in 1903. In 1905 Premier Clemenceau appointed him commandant of L'Ecole de Guerre. In 1907 he became general of brigade, in 1911 general of division, and in 1912 a corps commander. In 1913 he took command of the XX Corps at Nancy, tactically the most important along the frontier. One year later he led the XX Corps into battle with a French Army imbued with his teachings. After a few weeks of battle he took command of the newly formed Ninth Army and filled the gap between the French Fourth and Fifth Armies. This army he commanded throughout the critical days of the first battle of the Marne.

On that battle field he demonstrated his decisiveness and his profound belief in the principle of the offensive. His will to win was never shaken.

Soon afterward he became assistant to the commander in chief. After the battle of Ypres he commanded the French group of Armies of the North which, in 1916, engaged in the battle of the Somme. In 1917 General FOCH was named chief of the French General Staff, a position which gave him the military direction of the French Armies. In January, 1918, he became the president of the executive war board of the supreme war council. With the German spring offensive of 1918 the need for unity of control brought him into his great field of accomplishment. He then became the Generalissimo of the Allied and Associated Powers in France. On July 18, 1918, he started the allied offensives, which continued with little pause until the armistice. He was appointed a marshal of France August 6, 1918. Until November 11, 1918, the whole front reacted to the genius of his offensive strategy. All ranks of the American Army were proud to contribute their efforts under his direction.

Foreign countries, as well as France, vied in honoring Marshal Foch. He was elected to the French Academy in 1919. The Legion of Honor gave him its highest awards. Great Britain made him a Field Marshal and hon-

ored him with the Order of the Bath. The United States decorated him with the distinguished service medal. In 1921, he came to the United States as the guest of the American Legion. Crowds greeted him enthusiastically. Universities accorded him their highest honorary degrees. He took part in the sepulture of the Unknown Soldier. The American people learned to love the great man as before they had admired the illustrious soldier.

FOCH, the Frenchman, was patriotism itself. FOCH, the soldier, led his men with confidence and courage to success. FOCH, the Generalissimo, by clarity of vision, simplicity of plan, and vigor of decision, produced in his armies that unity of command and action which insured victory. FOCH, the man, was kind, straightforward, modest, and reverent. His conduct and character exemplified his own motto: "I fear God; I have no other fear."

The sense of loss felt by the armed forces of the United States is as great as it is among his soldiers and comrades of France.

We mourn with the great Republic of France which gave the world a FOCH.

II. As appropriate honors to the memory of this distinguished soldier, at dawn, Tuesday, March 26, 1929, the day of the funeral, a salute to a marshal of France of twenty-one guns will be fired at each military post, and afterwards at intervals of thirty minutes between the rising and setting of the sun a single gun.

The national flag will be displayed at half-staff at corps area and department headquarters and at all military posts, camps, and stations, and on all buildings and vessels under control of the War Department during the day of the funeral.

BY ORDER OF THE SECRETARY OF WAR:

C. P. SUMMERALL,
*General,
Chief of Staff.*

OFFICIAL:

C. H. BRIDGES,
*Major General,
The Adjutant General.*

It would seem hardly necessary to detail the love and veneration with which Marshal Foch was held in France, the national sorrow at his passing nor the phenomenal honors paid her great son by France on the day of his sepulture. Rarely, indeed, if ever, has venerable Notre Dame sheltered a more distinguished group of world representatives than they that gathered to pay tribute to his memory, nor was any tomb less stately than Les Invalides held appropriate for the final resting place of his ashes.

Needless also to record that America walked hand in hand with France in this her day of sorrow; for Ambassador Herrick, honored and beloved alike by them and us, with bared head trod the sorrowful way in

memory of his friend. Alas! all too soon was this gallant gentleman to follow down in the engulfing waters of the River.

In memory of this great soldier, this forth-standing man, there was held in Saint Louis at the Cathedral, 11:00 a. m. Friday, April 12, a solemn requiem Mass, at which His Grace Most Reverend John J. Glennon presided. The major address, in French, was given by Father Charles L. Souvay, President of Kenrick Seminary. This was followed by a brief eulogy spoken by the Archbishop.

Official representatives of the nations allied during the World War and numerous patriotic organizations were in attendance; both Army and Navy uniforms were substantially in evidence; and the massing of the colors in the vicinity of the chancel rail lent additional radiance to the blaze reflected from the opulent mural mosaics for which this Cathedral is justly famed.

When Marshal Foch was in Saint Louis, November 3, 1921, he was elected an Honorary Companion of the Saint Louis Chapter of the Military Order of the World War. In addition thereto, he was likewise a Companion of the Paris Chapter of the Order. It was therefore peculiarly appropriate that his fellow Companions of the Saint Louis Chapter should be in attendance on this occasion to render suitable honor and respect to his memory.

The Chapter was adequately represented. Among those present, alike Companions of the Order and members of the Missouri State Medical Association, were noted Major Theodore P. Brookes, Lieutenant Commander Rutherford B. H. Gradwohl, and Lieutenant Colonel Norvelle Wallace Sharpe.

TESTIMONIAL DINNER TO DR. GEORGE W. VINYARD

Among the many enjoyable features of the Annual Meeting at Springfield, was a surprise dinner tendered our old friend Dr. George W. Vinyard, Jackson, in honor of his 54th year in the active practice of medicine. On Monday evening, May 13, there assembled in the banquet hall of the Kentwood Arms Hotel seventy-five members of the State Association to do honor to this most beloved and outstanding physician. At the head table with his colleague, Dr. B. W. Hays, Jackson, who acted as toastmaster, were the President of the State Association, Dr. Frank I. Ridge, Kansas City, Dr. T. W. Cotton, Van Buren, President-Elect, and past presidents, Drs. W. H. Breuer, A. R. McComas, Frank G. Nifong, and E. P.

North, and a special guest, Dr. R. F. Lischer, Mascoutah, Illinois.

After a very enjoyable repast, a beautifully engraved watch with chain was presented to Dr. Vinyard by his admiring friends. Dr. Hays presided most happily and introduced the various presidents in order, with a few words from Dr. W. G. Patton, St. Louis, formerly of Cape Girardeau, a most entertaining talk by Dr. R. F. Lischer, Mascoutah, Illinois, on the "Country Doctor," and finally the assembled guests stood while Dr. Vinyard was presented and expressed his heartfelt appreciation of the honor that had been conferred upon him. Dr. Vinyard's talk was heard with the utmost attention and with the keenest enjoyment.

In passing, something must be said of Dr. Vinyard. He is a hale and hearty man, alert, kindly, sincere, with a fund of humor and a mighty amount of "horse sense" that is very rare and very priceless. He has passed through some remarkable epochs in medicine. Beginning his professional career during the pre-antiseptic days, he has practiced and changed his views and ideas to suit the kaleidoscopic changes which medicine has exhibited during these fifty years. How many of us could do that? The ordinary man, once his mind and hand become accustomed to one system, can hardly change at all, but here is a man that changed with many advances in medicine. His speech took us down the long lanes through which he has walked, beginning with his school days under Hodgen and other famous figures in the old St. Louis Medical College. From that time to this he has kept pace with the times. He has practiced medicine as a country doctor. Those of us who live and work in the cities have no idea of the trials and tribulations of these pioneers in the trenches. We sit at Great Headquarters while they dig their way up to the front line and stand the exposure, the lack of supplies, the difficulties in communication,—all this and more, and they live and smile and go on. Truly, these are our heroes, our unsung Vikings. All honor to them. They necessarily cannot practice with all our scientific accuracy but they ease the suffering, they go out into the night to bring contentment where anxiety exists; they carry a sympathetic attitude to an anguished family, and when the Black Camel kneels before a door, they soothe and succor the bereaved. Dr. Vinyard belongs to this gallant band of advance Scouts. His numerous friends salute him and wish him many more years of health and happiness.

PREVENTION OF BLINDNESS

More than 400 agencies including the American Medical Association now are cooperating with the National Society for the Prevention of Blindness, according to the annual report of its managing director, Lewis H. Carris, of New York City. Thus has the society risen from its modest beginnings as an attempt of a New York state committee 20 years ago to reduce the prevalence of babies' sore eyes at birth.

That first objective, as every one knows, has been realized beyond the most fanciful expectations of the society's founders. The use of the 100 per cent effective prophylactic drops at birth is required in most states and in 36 the solution is supplied to midwives and doctors without cost. Year by year the complete eradication of this source of blindness is more closely approached. Once it was the most prevalent of all causes of blindness. In the 20 years since the society was founded ophthalmia neonatorum has diminished 68 per cent in the histories of children in schools for the blind.

Fifteen years ago the society inaugurated two special classes for school children with seriously defective vision. Now there are 318 sight-saving classes wherein, with large type books, movable desks, ideal lighting and special methods of instruction, children with poor vision receive the same education as children with normal sight and, moreover, learn how to conserve their remaining vision. The society estimates that approximately 5,000 such classes are needed in the United States.

In conjunction with the National Safety Council, the society has attempted to reduce to figures the effectiveness of mechanical safety devices in the protection of sight. It has reported that the experience of 583 plants employing 578,000 men and women in 1926 and 1927 indicated that such devices saved 2759 men and women from serious injury or total blindness in both eyes and 4654 from serious injury or total blindness in one eye.

In 1928 the society undertook two new projects in cooperation with other national or international organizations. It began a study of international aspects of blindness prevention in cooperation with the League of Red Cross Societies, which will publish the report this year in English and in French. It entered upon a cooperative educational campaign with the American Federation of Labor in an effort to interest and instruct 5,000,000 families of working men and women. In addition it continued its cooperative relations with numerous local and national agencies.

NEWS NOTES

Dr. William W. Graves, St. Louis, professor and director of the Department of Neuropsychiatry of St. Louis University, has been granted a leave of absence for one year to devote himself to research on inherited variations in their relationship to mental and physical adaptability. Dr. H. Unterberg, associate professor, will serve as acting director of the department during Dr. Graves' absence.

Hoffmann-La Roche, Inc., Nutley, New Jersey, is the new corporate name and new location of the well known pharmaceutical house formerly styled The Hoffman-La Roche Chemical Works, 19 Cliff Street, New York. This company has occupied space in our advertising pages for quite a while, announcing their numerous articles approved by the Council on Pharmacy and Chemistry. Members desiring to write the scientific department of the firm are invited to take note of the change in the name and address.

The many Missouri friends of Dr. John A. Witherspoon, Nashville, Tennessee, will be grieved to learn that this valiant protagonist of ethical medicine died at his home April 26, 1929. He was one of the leaders in advancing the standards of medical education and served on the Council on Medical Education of the American Medical Association for nine years. In 1912 he was elected President of the American Medical Association. For more than thirty-three years he was identified with the Vanderbilt University Medical School to which he gave unlimited service in upbuilding that institution. He was clinical professor of medicine at Vanderbilt at the time of his death.

St. Louis University welcomes with pleasure the creation of the Wolfort Scholarship by Mr. Sigmund Wolfort and Miss Clara Wolfort in memory of their parents, Levi and Peppe Wolfort. This scholarship presents several unusual features. It is created in perpetuity to help a needy student, but he must be at the same time one of superior excellence, and to this end the agreement provides that the incumbent may avail himself of the stipend not only for his undergraduate medical career but also in pursuit of a specialty for two additional years either in the St. Louis University or in another. The broad vision which brought Mr. and Miss Wolfort to create such a scholarship is in accord with the most modern tendency of education and is worthy of emulation by others to whom such a form of benefaction makes its appeal.

Dr. Charles S. Thomas, St. Louis, has resigned as chief physician of the health department social disease clinic, effective July 1. Dr. Thomas will resume private practice.

Dr. Wallis Smith, Springfield, was awarded the first prize in the golf tournament held during the Annual Meeting of the Association at Springfield, in May. The second prize was won by Dr. C. E. Burford, St. Louis. Both of these participants will receive a beautiful cup suitably engraved. The tournament was held on the new Hickory Hills golf course which is the finest in that section of the state.

There are a number of vacancies in the medical personnel of the Catholic School Health Bureau, St. Louis. Physicians just finishing their internships and about to begin practice may find it advantageous to engage in such part time service. The service carries a small salary and excellent opportunities in the field of child health. Applicants having had two years of hospital service or those having had one year of hospital service and one year of practice will be given preference. Applications should be mailed to the Dean of the St. Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis.

The spring meeting of the Missouri-Kansas Neuropsychiatric Society was held at the University Club, Kansas City, Missouri, April 29, 1929. The program was mainly clinical, with the following case presentations: Juvenile paresis, by Dr. A. L. Skoog, Kansas City, Missouri; probable sixth nerve neoplasm by Dr. B. Landis Elliott, Kansas City, Missouri; spastic diplegia, by Dr. E. T. Gibson, Kansas City, Missouri. Dr. Skoog gave an entertaining talk on certain interesting phases of his recent visit to Europe. The next meeting of the Society will be held in the fall, at the time of the annual Clinical Conference.

Dr. Calvin L. Cooper, Kansas City, has been appointed health director for Kansas City. Dr. Cooper has had considerable experience in public health work and has practiced in Kansas City for the past thirty-one years. He served in the World War, being commissioned a captain and promoted to major, lieutenant colonel, and colonel. He is a past president of the Kansas City Chapter, Reserve Officers Association; the Missouri State Department, Reserve Officers Association; a past president of the University Medical College Alumni Association, and life president of the 1898 class of that College. He has served Jackson County Medical Society on its board of censors for a term of three years.

Dr. George D. Kettelkamp, St. Louis, was appointed superintendent and chief resident physician of Koch Hospital on May 31 by Hospital Commissioner Curtis H. Lohr, to succeed Dr. Robert S. Schwarz who resigned recently to accept an appointment in the south.

An honorary degree of Doctor of Laws was conferred by Central College upon Dr. David P. Barr, St. Louis, professor of medicine in Washington University School of Medicine, who delivered the commencement address at Fayette, June 5. "We are in danger of another form of scholasticism as bad as the school of the Middle Ages," said Dr. Barr. "We are at the mercy of propaganda that we believe merely because it is given to us with rhetorical emphasis and a semblance of authority."

Dr. Henry J. Scherck's fortieth year in medicine was celebrated with a dinner dance April 20, at Hotel Chase, in St. Louis. Dr. Scherck is professor of urology in St. Louis University School of Medicine. He joined the faculty in 1903 after spending some years at Tulane University, where he graduated in medicine in 1889. The affair was sponsored by Psi Delta Epsilon, of which Dr. Scherck is a member, with hosts and hostesses including Dr. and Mrs. Major Seelig, Dr. and Mrs. R. S. Weiss, Dr. and Mrs. S. F. Abrams, Dr. A. E. Strauss, Dr. and Mrs. E. Sigoloff, Dr. and Mrs. J. J. Singer, Dr. and Mrs. P. Frank and Dr. A. Goldman.

The committee in charge of the Samuel D. Gross prize of \$1,500 under the auspices of the Philadelphia Academy of Surgery is prepared to receive essays in competition for the prize. Essays may be submitted any time before January 1, 1930. This prize is awarded every five years to the writer of the best original essay illustrative of some subject in surgical pathology or surgical practice founded upon original investigations. The candidates for the prize must be American citizens and the essays must not exceed one hundred and fifty printed pages, octavo, in length. Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto containing the name and address of the writer. The essay must be written by a single author in the English language and sent to the trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians, 19 S. 22d St., Philadelphia, on or before January 1, 1930.

Dr. B. A. Wilkes, St. Louis, was elected president-elect of the American Protestant Hospital Association at its ninth annual meeting held in Atlantic City, June 17. He is a charter member of the association and has served on its board of trustees since its organization. Dr. Wilkes has been connected with the Missouri Baptist Hospital for the past forty years. During that time he has served twice as superintendent, which position he has held for the last nine years.

It is the pleasant custom of the visiting staff of the St. Louis City Sanitarium to follow its regular monthly staff meeting (in which the superintendent and the resident staff participate) with a luncheon-smoker. Possibly once every year or two, the superintendent invites the visiting staff, with their wives, to join him in an evening when music, films, tobacco, and a luncheon combine to maintain the uniformly cordial relation. In anticipation of his pending departure to serve as superintendent of the City Hospital, Dr. Elbert J. Lee, Jr., invited the visiting staff, with their wives, to meet him the evening of June 10. The usual plan was followed. Dr. Harry N. Glick screened some excellent films,—a study of African fauna, many of the more notable buildings and boulevards of Paris, and the Canadian Northwest Mounted Police in action. The singing of Mrs. Wm. Beckman with the facile piano accompaniment of Dr. Oscar F. Baerens formed the high light of the evening. Luncheon followed. The incoming hospital commissioner, Dr. Curtis H. Lohr, spoke briefly expressing cordial appreciation of staff functionaries and promising the utmost cooperation within his power. A motion, in acknowledgment of helpful official coordination in the past and expressing best wishes for his continued success as superintendent of the City Hospital, was unanimously carried and tendered by a rising vote to Dr. Lee, to which he suitably responded.

The new bipartisan Board of Eleemosynary Institutions, of which five members were appointed in April by Governor Caulfield, has been visiting the various institutions under its care with the worthy aim of acquainting itself at first hand with data useful in guiding its activities. The president, who will receive a salary of \$5,000 a year and will be the only paid member, is Roy H. Monier, of Carrollton, former State Warehouse Commissioner, who was appointed by Governor Caulfield to succeed Colonel Walter P. Fulkerson, of St. Joseph, who resigned. Associated with him will be Carl F. Bloker, of Caruthersville, a banker, and Augustus J. Hockaday, of Fulton, who were already members of the Board; Dr. M. A. Bliss,

of St. Louis, succeeding former State Senator Wm. T. Robinson, of La Plata, who resigned; former Circuit Judge Jesse McDonald, St. Louis, who succeeds Wm. M. Bowker, of Nevada, and Mark A. MacGruder, of Sedalia, who holds over under an appointment by former Governor Baker. It is gratifying to note the presence on the board of a physician outstanding as an authority in his specialty, whose training and judgment undoubtedly will aid the new board in avoiding those mistakes to which a board composed entirely of laymen might be liable.

A Medical Student Scholarship Fund amounting to \$500 annually was established at the Springfield session of the Women's Auxiliary. According to the plan as outlined by Mrs. M. P. Ravenel, Columbia, president of the Auxiliary, the Auxiliary will endeavor to raise the sum of \$500 annually for a fund to be known as the Medical Student Scholarship Fund. This amount is to be awarded to the medical student of the State University selected by a committee composed of Drs. M. P. Ravenel, M. Pinson Neal and Dudley A. Robnett, Columbia. The student will receive the fund for two successive years after he leaves the State University for completion of his medical studies in another school. Dr. and Mrs. Ravenel have personally contributed to such a fund annually during the past several years. This seems to be a very practical and helpful undertaking for the Women's Auxiliary to sponsor and will undoubtedly attract the willing efforts of all members of the Auxiliary.

OBITUARY

DELL FRANK RICE, M.D.

When the finger of death touched the eyelids of Dr. Dell F. Rice, St. Louis, into eternal sleep, there gathered a silence on the lips of a man whose words brought cheer and courage to many a suffering human. It was my privilege to have been intimately associated with Dr. Dell Frank Rice. When on May 20, I saw him in his home at two o'clock in the morning he was suffering agonizing pain from an attack of angina pectoris. The patient was bordering on a state of collapse. Happily after three days he felt relieved of this crushing pain. However, a pulmonary edema in the meantime developed which advanced into a pneumonia at the base of the right lung. The Doctor's progress was favorable, and in six days the breathing became more normal, the cyanosis disappeared and the temperature and pulse



DELL FRANK RICE, M.D.

came within normal range. Unfortunately, this favorable pause was only too brief and two days later the patient became delirious, shortly thereafter lapsing into a state of unconsciousness. The microorganisms had invaded the meninges and there carried on the merciless battle of destruction.

Weakened by the heroic struggle in overcoming the angina pectoris and the pneumonia, the body resistance was too seriously enfeebled to carry on the struggle against death and after nine days of unconsciousness Dr. Rice quietly slipped into the calm dignity of the long sleep on June 6.

Dr. Rice was born at Paw Paw, Michigan, and came to St. Louis about forty years ago. He was a graduate of the University of Michigan and was sixty-six years old. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

To those of us who were so fortunate as to know him well and enjoy his love and friendship, the man himself meant more than anything else. There was something wonderfully attractive in his personality. With a sweetness

of disposition there was evidenced a loyalty to friends that nothing could shake. A thoughtful kindness toward all with whom he came in contact made him one of the best loved men it has been our good fortune to know. Through all his life, in sunshine and in shadow, he was always the same true gentleman.

While his loss is a serious one to the patients he has served so faithfully for many years, the blow falls with much greater force upon the members of his family. They know better than any one the beauties of his character, the tenderness of his heart and the great devotion to his wife and children. May the Almighty temper the blow for them, softening it in the greatest possible degree, and may the bereaved ones realize that it is the hand of Providence that has stricken this good man and removed him from a temporal existence with its troubles and cares to the world above with the eternal reward for the good deeds done in this life.

Such we believe will be the reward of this excellent man whose mortal career has been cut short while yet in a state of usefulness, by the All Wise ruling power and Supreme Being whose decrees at times appear mysterious and almost inexplicable to mortal minds.

Dr. Rice was physician in charge of the Masonic Home of Missouri, located in St. Louis, for the past eight years. It has been my privilege and delight to accompany him in visits through the halls of this home where his only medicines were the personal presence and conversation of the man himself. Here he shared and lessened the anxieties of the aged inmates, cheered those that were weak-hearted and encouraged those that were sick. Verily it was an atmosphere of love and trust that his presence brought to these inmates, whose heart-strings, as it were, he was holding in his hands.

After all, the grandest thing next to the radiance that flows from the Almighty's throne, is the light of a noble and beautiful life, shining in benediction upon the destinies of men radiance that flows from the Almighty's throne lasting God.

F. REDER, M.D.

FRANK LEE KEITH, M.D.

Dr. Frank Lee Keith, Rivermines, a graduate of Missouri Medical College (now Washington University School of Medicine), 1881, died suddenly of heart disease April 22, 1929, at his home in Rivermines, aged 69. For several months he had been unable to be regularly at his office in Flat River, and had been a hospital patient in St. Louis. He had spent the day at home with his family, and in

the evening was left alone for only a moment when he became unconscious in the chair and died in a few minutes.

Dr. Keith, reputed the oldest physician in St. Francois County in years of practice, was born May 26, 1860, in St. Francois County, the eldest son of the late Dr. A. W. Keith, a pioneer physician of the county. Frank Lee Keith, following in his father's footsteps, entered the Missouri Medical College upon completion of his early training in local schools and graduated with honors. He went east for a postgraduate course and there married Miss Mary De Lisser, of Brooklyn, in 1883. Forty-six years ago Dr. Keith began the practice of medicine in his home community. He was well known in St. Louis and throughout southeast Missouri and always evinced a keen interest in public affairs as well as keeping well abreast of the progress of his profession. He was appointed by Governor Alexander M. Dockery the first superintendent of State Hospital No. 4 at Farmington. Private practice called him again in three years and he resigned and opened an office in Farmington whence he moved to Flat River twenty-five years ago. He was resident physician of the Doe Run Lead Company for twenty years. He had seen and aided in the growth of that mining section from the beginning, yet at sixty-nine years of age possessed a keenness of observation and a faculty of wide comprehension that gave him a freshness of spirit and mellowness of soul that made him a respected and beloved comrade of the young as well as the mature. He was a charter member of the University Club in St. Louis, and a member of the Masonic Lodge, being a Knight Templar and a Shriner, and a member of the St. Francois County Medical Society. His passing leaves a place that will not readily be filled in this community, and brings profound regret to his associates in medicine. Surviving are his widow, Mrs. Mary De Lisser Keith, and four daughters, Mrs. D. M. Dunbar, Chucucanata, Chile; Miss Marguerite Keith, Rivermines; Miss Marion Keith and Mrs. C. O. Inman, St. Louis.

Funeral services were held at the Flat River Presbyterian Church, the Rev. J. C. Berger officiating. Business was suspended during the funeral. Interment was made at Farmington.

P. S. TATE, M.D.

R. APPLEBERRY, M.D.

ALBERT MARSHALL, M.D.

Dr. Albert Marshall, a graduate of Washington University School of Medicine, died of acute indigestion May 12, 1929, at his home in

Bonne Terre, where he had practiced medicine for twenty-seven years. He attended to his professional duties that day but, when he called for his family at baccalaureate services in the high school at 9:30 p. m., told them he had just suffered an attack. It recurred a few minutes after he put his automobile away for the night, and he died at 10:15.

He was born in Nevada City, California, on July 18, 1879, the son of the late Mr. and Mrs. John Marshall, who removed to Bonne Terre two years later and came to be regarded as one of the leading families of that community. The son was educated in the Bonne Terre High School and Washington University, where he obtained his medical degree in 1902 at the age of twenty-two. Miss Bessie Drake was married to Dr. Marshall on September 8, 1909. She survives, with a daughter, Bessie, and a son, Marvin. A brother of Dr. Marshall, William Marshall, and a sister, Mrs. Sabrina Johnson, reside in Bonne Terre.

Pastors of the Baptist and Congregational Churches of Bonne Terre, respectively, the Reverend J. B. Ragsdale and the Reverend John T. Stewart, joined in the funeral services. Boy Scouts, of whom Dr. Marshall had been a helpful and enthusiastic friend, were flower-bearers and gave the Scout benediction. Dr. Marshall had served his community faithfully and well as a physician and as a citizen of vision and public spirit.

The St. Francois-Iron County Medical Society, in convention assembled at Leadwood, May 29, 1929, adopted the following resolutions in memory of Dr. Marshall:

WHEREAS, It has pleased all wise Providence to remove from our midst by death on May 12, 1929, our fellow-member and beloved co-worker in the field of medical science, Dr. Albert Marshall, Bonne Terre, and

WHEREAS, We realize that we have lost a personal friend, that our Society has lost a faithful member, and that the community has lost a man who devoted his life to the alleviation of suffering, therefore be it

Resolved, That we stand with bowed heads for one minute in respect to his memory, and be it further

Resolved, That we extend our heartfelt sympathy to the bereaved family, and be it further

Resolved, That a copy of these resolutions be spread upon the minutes of this Society and that a copy be sent to the family of our deceased member.

RICHARD J. OWENS, M.D.

Dr. Richard J. Owens, Mill Spring, a graduate of the University of Tennessee College of Medicine, Memphis, 1890, died February 9, 1929, aged 76. He had been ill several days from pneumonia which developed in a short time following an attack of influenza.

Dr. Owens was born in Humphreys County, Tennessee, January 25, 1852. In 1889 he moved to Wayne County settling near Mill

Spring. In 1890 he moved to Mill Spring where he lived until his death. During this time, a total of forty years, he was actively engaged in practice until two years ago when he retired.

Older residents recall the hundreds of times Dr. Owens went on horseback, in wagons and on foot many miles in all kinds of weather to administer to the sick and needy, making calls when he himself was barely able to stand the trip. Although busy with his practice, he found time to lend his efforts and means to every movement for the betterment of the church, school and other worth while enterprises. He was a member of the Christian Church.

He was a good, kind and noble character. His passing will be felt by members of his family, whom he loved so well, and by hundreds of other friends. His place will never be filled in the community or home.

Funeral services were conducted at the Mill Spring Church, February 11, the Rev. J. L. Wilkinson, pastor of the Poplar Bluff Christian Church, in charge. Rev. Wilkinson, in impressive words, extolled the beautiful life Dr. Owens had led.

Surviving are his widow and the following children: Mrs. H. H. McClure, Mrs. F. S. Chilton, Mrs. J. W. Yates and Dr. Roy J. Owens, of Mill Spring; Wm. P. Owens, Greenville; Richard N. Owens, Washington, D. C., an instructor in George Washington University. He also leaves two brothers, Jesse and David Owens, of Tennessee, and eight grandchildren.

JOSEPH L. EBLEN, M.D.

Dr. Joseph L. Eblen, Alton, a graduate of Missouri Medical College (now Washington University School of Medicine), 1898, died April 30, 1929, in the Baptist Memorial Hospital, Memphis, aged 61.

Dr. Eblen was born at Ralston, Tennessee, July 3, 1868. When he was one year old his parents moved to Howell County, Missouri, where he grew to manhood. Here he obtained his education. He attended the West Plains High School. Later he moved to Alton where he engaged in the newspaper business. After receiving his medical degree he practiced for a short time at Houston, Missouri, and Aztec, New Mexico, then moved to Alton where he practiced until his death. In later years he took a postgraduate course in New York City. He was a member of the Howell-Oregon County Medical Society and a Fellow of the American Medical Association.

In 1903 he married Miss Meekee Gum and to this union was born four children, all of whom survive. His wife preceded him in death on June 1, 1928, and her loss he felt so keenly that it caused him to lose interest in life and in his profession.

Dr. Eblen was a public spirited man, a true citizen, a fine physician and a faithful friend, a conscientious Christian gentleman, unfaltering in his faith and uncompromising in anything he conceived to be right. He was a faithful, tender and loving father. The community has lost a citizen and physician whose place it will be hard to fill and his loss will be keenly felt by the members of our profession who had the pleasure of knowing him.

P. D. GUM, M.D.

JACK BUTLER GRUBBS, M.D.

Dr. Jack B. Grubbs, Farmington, a graduate of the University of Tennessee College of Medicine, 1927 (B.S., 1924), died at the Memphis General Hospital of Bright's disease, April 18, 1929, aged 26.

Dr. Grubbs was a native of Bristol, Tennessee. He had been assistant physician at State Hospital No. 4, Farmington, since July, 1928, where his skill, sympathetic understanding and kindness won for him the love and respect of his patients and fellow-workers. Although he had not been in good health for some time his optimism, admirable courage and determination to carry on even under the greatest of difficulties always saw his work well done. He was a splendid physician, an excellent student and a loyal friend. For scholarly attainments during his medical course he was awarded a certificate of excellence by the University of Tennessee. He was a member of the Chi Zeta Chi Medical Fraternity. He spent his internship at the Memphis General Hospital from May, 1926, to August, 1927, and the Missouri Pacific Hospital, St. Louis, from September, 1927, to July, 1928. Before moving to Farmington he was resident physician at the Jewish Hospital, St. Louis. He was a member of the St. Francois County Medical Society.

R. APPLEBERRY, M.D.

CHARLES W. WATTS, M.D.

Dr. C. W. Watts, Fayette, a graduate of Jefferson Medical College, Philadelphia, 1871, died of influenza, January 29, 1929, at the home of his son-in-law and daughter, Professor and Mrs. S. P. Bradley, Rolla, aged 85. He had been in failing health for several years, and in 1926 he and his wife moved to Rolla to make their home.

Dr. Watts, the son of Dr. J. J. and Martha Lewis Watts, was born in Randolph County, Missouri, August 23, 1844. In 1868 he was married to Miss Ada E. Mathis, who with their three children, H. E. Watts, St. Louis; Chas. W. Watts, Denison, Texas; and Mrs. S. P. Bradley, Rolla, survives him. Prior to locating at Fayette in 1889, he practiced in Mexico, Moberly and Fayette. He was a member of the Masonic Lodge and the Methodist Episcopal Church.

The life of Dr. Watts was spent in faithful service to those among whom he resided. He was active in the support of the Howard County Medical Society, having acted as secretary for about eighteen years, and it was chiefly through his untiring efforts that the Society prospered. He was earnest, loving and faithful in all of his activities and was held in the highest esteem by all who knew him. He indeed leaves to his children a good heritage of usefulness and morality.

V. Q. BONHAM, M.D.

BARNETT DEAN S. WYLLIE, M.D.

Dr. Barnett D. S. Wyllie, St. Louis, a graduate of St. Louis University School of Medicine, 1904, died April 13, 1929, aged 52.

Dr. Wyllie was a native of Marissa, Illinois, and received his preliminary education at McKendree College, Lebanon, Illinois, and the Illinois College, at Jacksonville. For three years following his graduation he practiced at Union, Missouri, and has been located at St. Louis for the past eight and one-half years. He served as inspector of hygiene in the St. Louis Public Schools. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

PAUL CREWS SMITH, M.D.

Dr. Paul C. Smith, Pattonsburg, a graduate of Jefferson Medical College, Philadelphia, 1894, died March 24, 1929, at Trinity Lutheran Hospital, Kansas City. Dr. Smith was born in Howard County, Missouri, and obtained his education at Central College, Fayette, and at St. James Military Academy, Monroe City. After obtaining his medical degree he interned for one and one-half years in a Philadelphia hospital, then moved to Kansas City where he practiced for eighteen years. With Dr. Frank Hedges, he operated the H. & S. Hospital at Pattonsburg. Dr. Smith was a member of the Daviess County Medical Society.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.
Ralls County Medical Society, December 17, 1928.
Chariton County Medical Society, December 28, 1928.
Mercer County Medical Society, January 2, 1929.
Camden County Medical Society, January 11, 1929.
Benton County Medical Society, February 13, 1929.
Dent County Medical Society, April 3, 1929.
Marion County Medical Society, April 8, 1929.
Platte County Medical Society, April 11, 1929.
Atchison County Medical Society, April 22, 1929.
Christian County Medical Society, April 24, 1929.
St. Francois-Iron County Medical Society, April 24, 1929.
Schuyler County Medical Society, May 3, 1929.
Shelby County Medical Society, May 6, 1929.
Lafayette County Medical Society, May 15, 1929.
Scotland County Medical Society, May 22, 1929.
Henry County Medical Society, June 20, 1929.

MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Second Annual Session, Springfield
May 13, 14, 15, 16, 1929

MINUTES OF THE HOUSE OF DELEGATES

Kentwood Arms Hotel, Monday, May 13, 1929—
Morning Session

The first meeting of the House of Delegates of the Missouri State Medical Association, held on the roof garden of the Kentwood Arms Hotel, Monday, May 13, 1929, convened at 9:50 a. m., the President, Dr. Frank I. Ridge, Kansas City, presiding.

At roll call eighty-six delegates responded as follows:

Officers

President.....Frank I. Ridge, Kansas City
President-Elect...T. W. Cotton, Van Buren
Secretary-Editor...E. J. Goodwin, St. Louis
TreasurerG. W. Hawkins, Salisbury

Councilors

1st District.....O. C. Gebhart, Oregon
3rd District.....J. A. Crockett, Stanberry
7th District.....H. B. Goodrich, Hannibal
8th District.....B. K. Stumberg, St. Charles
9th District.....A. R. McComas, Sturgeon
10th District.....Don A. Barnhart, Huntsville
11th District.....J. H. Timberman, Chillicothe
12th District.....Spence Redman, Platte City
13th District.....O. S. Gilliland, Kansas City
16th District.....J. T. Hornback, Nevada
17th District.....Guy Titsworth, Sedalia
18th District.....W. L. Allee, Eldon
19th District.....J. S. Summers, Jefferson City
20th District.....F. C. Simon, St. Louis
21st District.....T. F. Estel, Altenburg
23rd District.....J. B. Luten, Caruthersville
26th District.....W. H. Breuer, St. James
27th District.....J. C. B. Davis, Willow Springs
28th District.....W. M. West, Monett
29th District.....R. M. James, Joplin

Delegates

COUNTY	DELEGATE
Audrain.....	Paul E. Coil, Mexico
Barry.....	W. M. West, Monett
Boone.....	Frank G. Nifong, Columbia
Buchanan.....	Daniel Morton, St. Joseph
Buchanan.....	E. A. Gummig, St. Joseph
Callaway.....	W. H. Williamson, Mokane
Cape Girardeau...	B. W. Hays, Jackson
Christian.....	E. E. Wade, Clever
Clay.....	C. H. Suddarth, Excelsior Spgs.
Cole.....	W. A. Clark, Jefferson City
Franklin.....	B. E. Mankopf, Washington
Greene.....	J. W. Love, Springfield
Greene.....	P. F. Cole, Springfield
Howard.....	V. Q. Bonham, Fayette
Howell-Oregon...	P. D. Gum, West Plains
Jackson.....	H. Lewis Hess, Kansas City
Jackson.....	Marvin B. Ketron, Kansas City
Jackson.....	E. J. E. Evans, Kansas City
Jackson.....	Harry M. Gilkey, Kansas City
Jackson.....	D. D. Stofer, Kansas City
Jackson.....	Walter F. Holbrook, Kansas City
Jackson.....	Charles E. Nickson, Independence
Jasper.....	R. M. Stormont, Webb City
Jasper.....	L. C. Chenoweth, Joplin
Jefferson.....	N. W. Jarvis, Festus
Laclede.....	J. W. Lindsay, Conway
Lawrence-Stone...	W. J. Bryan, Mt. Vernon
Livingston.....	H. M. Grace, Chillicothe
Marion.....	C. W. Hamlin, Palmyra
Mississippi.....	A. H. Marshall, Charleston
Nodaway.....	C. D. Humbert, Barnard
Pemiscot.....	J. B. Luten, Caruthersville
Perry.....	T. F. Estel, Altenburg
Pettis.....	A. L. Walter, Sedalia
Phelps.....	S. L. Baysinger, Rolla
Platte.....	S. L. Durham, Dearborn
Pulaski.....	A. J. Crider, Dixon
Randolph.....	C. H. Dixon, Moberly
St. Charles.....	A. P. Erich Schultz, St. Charles
St. Francois-Iron...	W. W. Johnston, Flat River
St. Louis City....	Ralph L. Thompson, St. Louis
St. Louis City....	C. H. Shutt, St. Louis
St. Louis City....	W. G. Patton, St. Louis
St. Louis City....	R. B. H. Gradwohl, St. Louis
St. Louis City....	Harry M. Moore, St. Louis
St. Louis City....	C. W. Thierry, St. Louis
St. Louis City....	C. E. Hyndman, St. Louis
St. Louis City....	Robert Vinyard, St. Louis
St. Louis City....	Alphonse McMahon, St. Louis
St. Louis City....	J. McH. Dean, St. Louis

St. Louis City.....C. E. Gilliland, St. Louis
St. Louis City.....F. J. V. Krebs, St. Louis
St. Louis City.....C. E. Burford, St. Louis
St. Louis City.....H. H. Bell, St. Louis
St. Louis City.....Emmett P. North, St. Louis
St. Louis City.....R. A. Woolsey, St. Louis
St. Louis City.....F. Reder, St. Louis
St. Louis.....O. W. Koch, Clayton
St. Louis.....C. P. Dyer, Webster Groves
Texas.....Leslie Randall, Licking
Vernon-Cedar....E. H. Liston, Nevada
Wright-Douglas..R. M. Norman, Ava

Following the roll call the President declared a quorum present.

Dr. O. C. Gebhart, Oregon, moved that the reading of the minutes of the previous meeting be dispensed with since they had been printed in *THE JOURNAL*. Seconded and carried.

The President read his message and recommendations as follows:

President's Message and Recommendations

One thing that is essential, and which the medical profession does not realize today as it should, is a united front among practitioners of medicine. The fact that our science is mostly individualistic in our caring for patients leads us to assume that as individuals we have the prerogative of airing our opinions and speaking our piece in all gatherings and under all conditions. Especially in our conversations with the lay public are we rather prone in many instances to decry cooperation between medical men as organized in medical societies. Any impression given to the lay public is widely disseminated to the entire population and our respective organizations are put at naught. An expression of opinion by members of the Association, especially before legislative committees and the legislature, is to be derided.

We have had some rather unfortunate experiences in the last legislature showing how far astray a doctor's lackadaisical way of saying, "It does not amount to anything," may lead. Several members of our Association have appeared before committees saying, "Oh, well, it doesn't matter much—let the osteopaths give their patients narcotics." We cannot expect the legislature to appreciate the feeling of organized medicine when our individual members talk in such manner. One legislator said, "We do not know what to do. You doctors do not know what you want. One says this and one says that. So I went to my druggist and asked him whether we should give narcotics to osteopaths, and he seemed to think it would be all right." It is very difficult to combat such expression of opinion from individuals, and in some cases from organizations as a small unit.

We are living in a world of what is termed "high pressure" salesmanship. We find it in all the industries; we find it in the bond business, in the motor car business, in everything—everything must be put over by so-called high pressure. To a certain extent the medical profession has not cooperated as they should with the lay press. We have allowed the lay press to publish incomplete, unverified work, some wild scheme, under almost scare headlines. This has been especially true in the matter of mechanical diagnosis and mechanical treatment, and in the prognosis in certain lines, especially in some specialty such as the cure of cancer, the cure of streptococcal infection, the use of heliotherapy, or the use of electrotherapy. The lay press is only too anxious to grab anything of a sensational nature, and a great many of the medical profession whom we look upon as ethical practitioners, but who really have the soul of a charlatan, will twist anything for financial gain, or for propaganda in their own line of work.

The medical profession, as individuals and as an organized association, has long been the butt of proselyting uplifters. I call them "cash register uplifters." They usually have a retinue of paid secretaries and all that, who follow from one state to another. They take advantage of the medical profession by coming to us for endorsement of this method or that, and the first thing we know we have innocently endorsed something, and then they come along with a large retinue of paid workers who are foisted on the public to support. We have been supporting them for years, and unless we have some organized business management to look into and investigate the value of past work done by these organizations and report to the medical societies, we will continue to be the prey of these people. The medical associations and medical men need business managers and investigators. I think it is high time that we be very chary in the business of endorsing methods and schemes and giving them our support. We give the work and the other fellow profits by the donations of the lay public.

We have societies for the control of this and that. We go back and look at the last report of the Society for the

Control of Tuberculosis, and what does that report show? That there is no decrease in the death rate from tuberculosis. In fact, there is an increase in deaths from tuberculosis in the United States. There is a small decrease in the rural communities, but an increase in the urban communities. The decrease in the rural communities is not proportionate to the decrease in population of the rural communities, and the increase of patients in urban communities is greater than the increase in population. If all the millions that have been spent in the work of examinations and in talks made by the medical profession were put into a fund for the treatment and care instead of placarding billboards and telling everyone, "You have tuberculosis; you had better see a specialist," more would be accomplished. I do not know how much has been spent in the last five years on billboard advertising, trying to tell the public that they have tuberculosis, but if it were put into beds it would probably have served to decrease the death rate from that disease. The same holds true of all these societies for the prevention or control of disease. They tell us that cancer is increasing, that heart disease is increasing. I do not know whether they are or not. One imagines that the rate has been fairly stationary. We do know that much of the talk about the increase of the span of life is only commensurate with the younger ages, not with adult life.

A proposition has been put up to the Missouri State Medical Association that we endorse and foster the printing of 500,000 copies of a syllabus on the care of eye, ear, nose and throat, and goiter, for distribution among school children up to the twelfth grade in Missouri. The cost of such publication I think would be rather more than should be spent for a pamphlet to give the average child to put in his pocket and lose on the way home. I think the medical profession should take some concerted action on the teaching of hygiene and preventive medicine by teachers in colleges and schools who are not qualified in this line.

Rather an interesting thing happened in my city not long ago. This Canti film was being shown—a moving picture of cell division. It was explained by a pathologist. In the course of the demonstration the effect of cell division showed that irradiation by X-ray or radium caused a slowing down of cell division, but that later on that cell division came back and went on probably a little faster than before the application of radium or radio-active substances. What happened when the newspapers got hold of that? The papers came out next day saying that the American Medical Association had demonstrated by moving pictures that X-ray and radium stopped the division of cancer cells. Then following that was an interview with a prominent specialist who said that the science of radiology and the use of radium and the X-ray hold forth great hope in the near future for the control of cancer. Now what does the lay public know about that? They take it for gospel, as emanating from the medical profession, and the result is that every charlatan that can get a radio-active remedy comes along and says he can cure cancer and people flock to him for treatment.

I would recommend that all state medical societies come together in some general meeting, upon a common basis, and formulate a standard medical practice act to be applied to every state in the Union, all having the same qualifications. That is in the future, but I believe that by concerted action eventually it can be accomplished.

Medical education, in my opinion, has become too standardized. We have neglected to a great extent the people, in raising our standards of medical education. The A. M. A. holds and many of the universities feel that a fifth year of intern service is necessary before the degree of medicine is given. I heartily agree with the proposition that one year of internship should be given, and I would suggest that two years would be beneficial. No man can be turned out a competent doctor in one year, specializing in surgery, gynecology, eye, ear, nose and throat, genito-urinary work, or any of the specialties, after one year in a hospital, or so it seems to me. In addition to the one year intern service if the medical student between his second and third years, and between his third and fourth years, could be apprenticed, preferably to a practitioner in a rural community, at a nominal salary during his summer vacation, I believe two such apprenticeships would be equal to one year of hospital service. With such an arrangement the medical students and young doctors will know something about contact with the people they have to handle. They will learn how to treat disease, not to diagnose according to a machine which is put at their disposal. At the same time the doctor in the rural community will have his interest re-awakened in laboratory methods by these young students, and it will work both ways—for the good of the rural practitioner in keeping him abreast of the newer methods, but vastly more to the benefit of the medical student who learns the practice of medicine in a way he will not get in a hospital.

I would also recommend for the consideration especially of the Committee on Mental Hygiene and Criminal Jurisprudence, the fact that all of the eleemosynary institutions not only in this state but in every other, are crowded to the doors. Especially does this hold true in epileptic clinics and institutions for the feeble-minded where they have low-grade mentalities, constitutional inferiors, and epileptics. If it were possible to work out some scheme whereby these

incapacitated people could be put at some productive work they would not be a total loss to the community and the burden upon the state finances would not be so great. In the Ozarks I imagine they could possibly employ a thousand epileptics as berry pickers at that season of the year. There should be some method of caring for these people so they might contribute something to the general welfare.

There is a continual fight over the licensure law, as you know. We had a very nice fight in the last session of legislature, and if it had not been for some of our good friends not of the medical profession we would have been left at the nine hole in many instances. In the southern part of the state we have Senator McCawley, who is not a physician but is a bulwark for the protection of the inhabitants of Missouri against quackery and charlatanism when he comes to the Senate. We have also great help from Senators Kinney and Brogan, of St. Louis. I wish I could say as much for Kansas City. The medical profession is not trying to benefit its members, but for the welfare of the community it behooves us to go as far as we can in protecting the people against charlatanism.

The lack of cooperation between medical men, especially in medical societies, is to a great extent because of lack of a common interest. They are too self-centered. To stimulate that I do not know of anything that brings men together better than death, or death followed by poverty of the family of one of their fellow-practitioners. The Masonic bodies have a widow's insurance fund which has functioned for years. It is a voluntary organization. When any member of that organization dies the other members belonging are assessed so much, and immediately, within twenty-four hours after the death, the widow receives a check for a stated amount. I know there is many a doctor's widow who when her husband dies does not know where she is going to find money to pay the undertaker, and I believe some such cooperative organization if started among doctors would be a boon and a blessing and would give them a common contact and fellow-feeling more than anything else.

Another thing I would like to suggest for the consideration of this Association is a Memorial Fund, that fund not to be a memorial for doctors alone, but if any friend or acquaintance passes beyond this world and we are called upon to donate flowers, instead of sending flowers to the bereaved I would suggest that the money be sent to the Memorial Fund of the Missouri State Medical Association, that fund to be kept intact and the interest only used in fostering and promoting medical education, such as helping a worthy medical student, either by loan or donation, or using the money for some research work that is of especial value; and after this donation has been made the Medical Association, through the Secretary or the Chairman of the Memorial Committee, send an engraved card to the widow stating that a donation has been made to the Memorial Fund of the Missouri State Medical Association in memory of the loved one gone, and stating also the object of the fund; also that yearly a list of names of those on the memorial roll be published in THE JOURNAL of the State Association.

In closing I wish to thank the officers and the members for their cooperation and help in the last year. I only regret that I was unable to give more than I have given.

In retiring from this office, which is the greatest office any medical man in the state can hold, I back out, but I still wear my collar and harness, and in case I am needed I shall always work and cooperate with my fellow practitioners in medicine in the State of Missouri and in the nation, hoping in the ultimate future to attain perfection.

Dr. C. H. Shutt, St. Louis, moved that the President's message and recommendations be referred to the Council. Seconded and carried.

President Ridge appointed the following reference committees:

Reference Committee on Constitution and By-Laws

Dr. Daniel Morton, St. Joseph, Chairman.
Dr. A. P. Erich Schulz, St. Charles.
Dr. A. H. Marshall, Charleston.

Reference Committee on Resolutions

Dr. P. D. Gum, West Plains, Chairman.
Dr. Frank G. Nifong, Columbia.
Dr. C. D. Humberd, Barnard.

Reference Committee on Miscellaneous Affairs

Dr. H. Lewis Hess, Kansas City, Chairman.
Dr. F. C. Simon, St. Louis.
Dr. V. Q. Bonham, Fayette.

REPORT OF THE GENERAL COMMITTEE ON ARRANGEMENTS

Dr. W. M. West, Monett, read the report of the

General Committee on Arrangements as follows:

The General Committee on Arrangements named Dr. H. A. Lowe, Springfield, chairman of the Local Committee on Arrangements and this nomination was approved by the Council. The General Committee on Arrangements has kept in close touch with Dr. Lowe and his subcommittees on the preparations for the Session of the Association, and wish to commend the local committee for their splendid activities and the thorough manner in which they have prepared the arrangements for the meeting.

W. M. WEST, Chairman,
J. C. B. DAVIS,
ROBERT M. JAMES.

On motion, duly seconded, the report of the General Committee on Arrangements was adopted.

REPORT OF LOCAL COMMITTEE ON ARRANGEMENTS

Dr. H. A. Lowe, Springfield, chairman of the local Committee on Arrangements, reported as follows:

With such an efficient and experienced secretary as Dr. Goodwin has for so long proven himself to be, there is not much left for a local committee on arrangements to do. We have carried out all instructions given us and so far as we are able to ascertain, all arrangements have been satisfactorily completed.

The headquarters hotel was filled up with reservations some two weeks ago but there are ample facilities in other hotels to care for all guests and visitors.

The golf tournament is to be played at the Hickory Hills golf course. All particulars concerning the tournament can be had at the information bureau and exhibit room.

The headquarters for the Women's Auxiliary is at the Colonial Hotel.

Tuesday evening at 9:30 the Greene County Medical Society is giving a complimentary buffet luncheon on the roof garden of the Kentwood Arms Hotel. Complimentary tickets will be given each member and guest at the time of registration. We are anxious to have all attend. There will be entertainment from one of the local vaudeville shows.

For those who haven't their own cars or other means of transportation, we invite you to ride in any car with the Greene County Medical Society sticker.

H. A. LOWE, Chairman.

On motion the report was adopted.

The Secretary, Dr. E. J. Goodwin, read his report as follows:

REPORT OF THE SECRETARY

We have overcome the slight loss of membership reported at the Columbia session in 1928 and regained our numerical strength, the total membership on May 1 being 3305.

This being a legislative year the work in the Secretary's office has been correspondingly increased because of the necessity of keeping members informed concerning the progress of bills in the state legislature at Jefferson City.

To the increase of our work on account of the state legislature a considerable volume of labor has been thrown upon us by cooperating with the American Medical Association on problems in Congress that affect the medical profession. Among the latter was the endeavor carried on in two previous sessions of Congress to obtain deductions from income tax reports of expenses when attending medical meetings and postgraduate courses. I am glad to report that this battle has been won and these expenses are now deductible.

Another measure in Congress that required our close attention was the prevention of the increase of the tax on licenses to write narcotic prescriptions from \$1 to \$3, a bill having been introduced in Congress to increase this tax on physicians. This measure was defeated and the tax remains \$1.

Renewed appeals were made to the Radio Commission at Washington to prevent broadcasting of false, misleading or deceptive statements, but without success. The Radio Commission states that the law provides authority for revoking the license of a broadcasting station guilty of such an offense but that such revocation cannot be ordered without citing the person to appear before the Commission and producing evidence sufficient to convince the Commission that the license should be revoked.

The attempt to pass a bill in Congress extending the activities of the Sheppard-Towner Act also had our attention, and protests were lodged with our Congressmen and Senators against the passage of this bill.

The new tariff bill now under consideration by Congress increases the tariff on surgical instruments from forty-five to seventy per cent. In response to appeals from the American Medical Association, letters and telegrams were mailed to County Societies, officers and members throughout the state asking for protests against this increase.

Concerning the bills in our state legislature you will hear from our Committee on Public Policy.

The Secretary was instrumental in preventing the owner

of a so-called health institute in Excelsior Springs from closing a contract with a broadcasting station in St. Louis by informing the manager of the station of the character of the health institute and the status of the owner. This person had previously been refused a contract with a station in Iowa and another station in Omaha.

The Chamber of Commerce of St. Louis some six months ago requested the cooperation of our office in answering letters received by the Chamber concerning the status of physicians, medical institutions, hospitals, and advertising specialists, which of course we readily responded to. Since that time, the Chamber of Commerce has been in close touch with our office and often sends communications to us for reply direct to the inquirer. They, however, keep a record of the service so that they are building up a file of information that will undoubtedly be useful to them in the future.

For a good many years the Provident Association has depended on our headquarters for information concerning the status of physicians who are treating persons under the care of the Provident Association, and the Better Business Bureau has likewise been in close touch with our headquarters since the Bureau was organized.

The United States Government is constantly requesting information on applicants for medical positions.

About two weeks ago, one of the most influential newspapers of this country, the St. Louis *Post-Dispatch*, informed the Secretary that the owners intended to clamp down on medical advertisements and requested our cooperation in ascertaining the reliability of medical articles and institutions seeking publicity in the public press. We of course opened the facilities of our office to them and have been instrumental in assisting them. This naturally has placed an extra burden on our office force but we have been able to accomplish it as a part of the work of bringing the Missouri State Medical Association in contact with influential bodies interested in protecting the public health.

The recital of these activities leads me to suggest that the usefulness of an executive secretary for the larger component societies as suggested by the President in his message and recommendations is readily comprehensible. From the experience of other societies with an executive secretary it is conceivable that the St. Louis Medical Society and the Jackson County Medical Society and similar large component societies would become far more influential in public health matters than they are at present, and the State Medical Association in like measure would grow more influential.

In legislative matters our representatives from the City of St. Louis are difficult of approach by our Association because of the impossibility of the St. Louis Medical Society as a whole knowing how to approach the nineteen different representatives from that city.

During the year we have lost by death three members who have been identified with the activities of the Association ever since the reorganization in 1903, Dr. W. J. Ferguson, Sedalia, a delegate to the American Medical Association; Dr. T. B. M. Craig, Councilor of the Sixteenth District, and Dr. Robert L. Hamilton, Richmond, a member of the Committee on Public Policy, and for many years Secretary of Ray County Medical Society.

In the place of Dr. Craig as councilor, the president has appointed Dr. J. T. Hornback, Nevada, to serve until this session.

Dr. W. C. Gayler, St. Louis, Councilor of the Twentieth District, resigned his office and the president has appointed Dr. Fred C. Simon, St. Louis, to serve until this session.

Dr. T. J. Downing, New London, Councilor of the Seventh District, resigned and in his place the president appointed Dr. H. B. Goodrich, Hannibal.

Status of Membership

Number of Members, May 1, 1928.....	3279
New Members	175
Reinstated	34
Total	3488
Resigned	11
Transferred	39
Dropped	76
Deceased	57
Suspended	183
Total, May 1, 1929.....	3305

Respectfully submitted,

E. J. GOODWIN, Secretary.

Dr. H. Lewis Hess, Kansas City, moved that the Secretary's report be referred to the Council. Seconded and carried.

The Treasurer, Dr. G. W. Hawkins, Salisbury, read his report as follows:

General Fund

Receipts

Balance May 12, 1928.....	\$18,775.52
County dues	23,785.00
Advertising	8,436.87
Medical Protective Company (Rent).....	540.00
Exhibit Space	942.00
American Medical Association	750.00
Interest 1-1-28 to 12-31-28.....	273.90

Total

\$53,503.79

Disbursements

Vouchers paid	36,956.62
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Balance, May 11, 1929.....

\$16,547.17

Legislative Fund

Receipts

Balance, May 12, 1928.....	\$ 4,783.42
Transferred from General Fund	5,030.00
Interest 1-1-28 to 12-31-28.....	78.72

Total

\$ 9,892.14

Disbursements

Vouchers paid	8,211.15
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Balance, May 11, 1929.....

\$ 1,680.99

Defense Fund

Receipts

Balance, May 12, 1928.....	\$ 1,269.27
Transferred from General Fund.....	1,000.00
Interest 1-1-28 to 12-31-28.....	45.00

Total

\$ 2,314.27

Disbursements

Vouchers paid	300.00
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Balance, May 11, 1929.....

\$ 2,014.27

Sinking Fund

Receipts

Balance, May 12, 1928.....	\$ 688.02
Interest 1-1-28 to 12-31-28.....	18.00

Balance, May 11, 1929.....

\$ 706.02

Recapitulation

May 11, 1929

General Fund	\$16,547.17
Legislative Fund	1,680.99
Defense Fund	2,014.27
Sinking Fund	706.02

Total

\$20,948.45

G. W. HAWKINS, Treasurer.

Dr. C. D. Humberd, Barnard, moved that the report of the Treasurer be referred to the Council. Seconded and carried.

Dr. H. A. Lowe, Springfield, chairman of the Local Committee on Arrangements, announced that a testimonial dinner would be given to Dr. George W. Vinyard, of Jackson, on the completion of fifty-four years of active service in the practice of medicine, in the Kentwood Arms Hotel at 7:30, Monday evening, May 13.

Dr. E. J. Goodwin, St. Louis, chairman of the Committee on Scientific Work, reported as follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

Beginning in the fall of 1928 to work upon the scientific program for this session, your committee had practically completed the arrangements by February, 1929. The requests for the privilege of reading papers were so numerous and the titles so promising that your committee feels disposed to apologize for crowding the time devoted to scientific papers. We felt, however, that we could utilize the night of Tuesday and thus satisfy most of those members who had offered to read papers although warning them that they will have to remain within the 20 minute limit of the presentation. With even the large number of papers on this program your committee was compelled to decline several others who could not possibly be accommodated.

We carried out the plan of the previous meeting and present four symposiums—one on urology, one on obstetrics, one on chest diseases and one on fractures.

With the consent of the Council the committee has invited six guests to address the Association, viz., Doctor Peter

Bassoe, Chicago, Illinois; Doctor Stuart Pritchard, Battle Creek, Michigan; Doctor H. E. Kleinschmidt, New York City; Doctor J. H. J. Upham, Columbus, Ohio; Doctor P. M. Hickey, Ann Arbor, Michigan; Doctor Philip D. Wilson, Boston, Mass.

The committee is gratified to report that papers will be presented at this session from 9 members who live in districts outside of the two large cities. We hope members from the smaller communities will continue to give us the benefit of their experiences and present a number of papers at future meetings.

E. J. GOODWIN, Chairman.
J. E. STOWERS,
R. F. HYLAND.

Dr. W. H. Breuer, St. James, moved that the report of the Committee be adopted. Seconded by Dr. P. D. Gum, West Plains, and carried.

Dr. W. L. Allee, Eldon, chairman of the Committee on Public Policy, read his report as follows:

REPORT OF THE COMMITTEE ON PUBLIC POLICY

At the annual meeting in May, 1927, this committee received certain instructions and was given certain specific objects to attain.

In addition to this we received other tasks from the Councils' meeting at Kansas City in December, 1928.

The Executive Committee has added other duties from time to time, and certain emergencies have arisen in the legislature during its 1929 session that required our attention.

The General Hospital

A resolution was adopted at the Annual Meeting in 1927, and considered at a joint meeting of this committee and the Executive Committee in March, 1928, inaugurating the movement to establish a General Hospital in Missouri where indigent persons, sick, injured, crippled and deformed, could receive free treatment and competent medical and surgical care. It was desired to use this hospital in teaching the clinical years in medicine at the University of Missouri, thereby restoring medical teaching to the full four year course.

The committee was instructed to obtain information concerning such hospitals in other states and draw a suitable bill for passage in the Fifty-Fifth General Assembly. This was done. It was immediately found that the introduction of such a bill was premature, as the state was in no condition to undertake such an expense and such a General Hospital belonged in the general group of eleemosynary institutions, as was outlined in the Governor's inaugural address wherein he recommended to the General Assembly that an act be passed creating a commission to make a survey looking toward the rehabilitation of all of the state eleemosynary, penal and educational institutions, their needs, and the method and plan of financing the work. This bill has become a law and the Governor is now selecting his commission to carry out the provisions of this act.

It is most important that this Association through its Public Policy Committee and its executive officers should meet with this commission, work with them and follow up the plan of incorporating our General Hospital plan in this great movement.

A Physician in the Coroner's Office in Every County

A bill changing the present law on coroners of the state, providing for a reputable physician to be appointed by the Governor in every county in the state, and two in the City of St. Louis, and making other changes in the law, was sponsored by The Missouri Association for Criminal Justice, and such a bill was introduced in the Senate. Your committee was notified and asked to lend assistance, which was immediately done. However, we were later notified by the Legislative Committee of the Association for Criminal Justice that the bill was not in proper form, and that no further action on bill was to be taken at this session, so the work on this measure was abandoned. This is a most valuable idea and we are informed that the bill will be put in proper form by the Association for Criminal Justice and introduced at the next session of the General Assembly.

State Hospitals for the Insane

The Association has consistently advocated the medical supervision of the treatment of the insane in our state hospitals by some one skilled in such treatment. For this purpose has arisen the health supervisor, or medical supervisor of our state hospitals. This office has had a stormy course for the eight years of its existence, finally being temporarily abolished by the action of the board in removing the Health Supervisor, then appointing another at a lower salary, and next, after this appointee resigned, allowing the office to remain vacant. The Eleemosynary Act as

passed by the present Assembly retains this office at a salary of \$5,000 per year. From the personnel of the board as now appointed by Governor Caulfield, we have hopes that this very important office will receive its just appreciation.

Crippled Children's Bills

The crippled children's bills, that appeared early in the Assembly, are sponsored by organizations created for that purpose. The activities of this committee in this very important matter have been limited to urging the Assembly to work out some plan whereby the crippled children may be the direct beneficiaries of all the money provided, and that the treatment may be administered by physicians and surgeons competent along these lines. If the General Hospital plans are successful they will very much simplify this matter.

Workmen's Compensation Bill

The committee was instructed by the Council meeting at Kansas City to secure a change in the Workmen's Compensation Act, so that a larger sum than \$250 would be available for hospital care and medical and surgical treatment for the period of the first sixty days. The bill passed the House, allowing \$500 for ninety days instead of \$250 for sixty days. It is now in the Senate for consideration.

Emergency Bills

Among the emergency bills coming to our attention the following are noted:

1. A bill to prevent the use of any animal for experimental purposes.
2. A bill affecting the work of chiropractors.
3. A bill licensing cosmeticians under the supervision of the Board of Health.
4. Supervision of sanitary conditions of barber shops by Board of Health.
5. Bills affecting drug store activities and the relation of physicians and druggists.
6. The permission of the State of Missouri for osteopaths to use narcotics in the practice of their profession.
7. Revision bills affecting the penalty for issuing diplomas to students who have not attended full time of schools, and for accepting them.
8. Revision bills affecting obstetrical practice and use of antiseptics in eyes of new-born.
9. Classification of all crimes, punishments, and penalties.

W. L. ALLEE, Chairman.
R. L. HAMILTON,
ROBERT VINYARD.

This report was discussed by Drs. L. C. Chenoweth, Joplin, Hermon S. Major, Kansas City, S. L. Baysinger, Rolla, Frank I. Ridge, Kansas City and Daniel Morton, St. Joseph.

On motion by Dr. W. L. Allee, Eldon, duly seconded and carried, the House of Delegates invited Dr. Herman E. Pearse, Kansas City, to speak on the report of the Committee on Public Policy.

Dr. Pearse said:

DR. HERMAN E. PEARSE, Kansas City: Not being a delegate to this body I feel honored that you allow me to elucidate this matter. The collector at Kansas City is the collector for the sixth district, which includes not only Kansas City, but a good deal of the State of Missouri.

About 1911, as I recollect, we got a ruling from the Commissioner on Narcotics and the Bureau at Washington. He ruled that in any state that recognized a practitioner the Bureau could give that practitioner the use of narcotics. Under that ruling there were two Christian Science practitioners who carried their hypodermic syringes. I remember hearing one of these Christian Science gentlemen being quizzed as to why he did such a thing, and he said that physical means sometimes placed the mind in a receptive attitude for the truth, which Christian Scientists are ready to impart when the mind is in the proper receptive attitude. They had that privilege in Kansas City and in this district until 1928, when it was taken from them on account of things that had happened. What they were I do not know, but the Department allowed the different collectors in the district to use every effort to curb the use of narcotics—there were too many people using narcotics. This right was withdrawn from the osteopaths and from the M.D.'s who had abused the right.

In October, 1928, the osteopaths at Kirksville appealed to the Attorney General for an opinion to be rendered stating that the osteopaths were legal practitioners of medicine and should be permitted to prescribe narcotics. This opinion was rendered, but the word "not" was placed before "legally qualified practitioners," blocking the way for them. The Attorney General's office after investigating the law in regard to the osteopathic board and the law regulating the practice of medicine, said that under the conditions of the

Harrison Act they were not privileged to prescribe narcotics. They then picked out an osteopath in Kansas City who was willing to have his name used, and filed a mandamus suit against the collector to compel him to issue a license to osteopaths. As soon as the Attorney General's office heard about this they went to Kansas City and withdrew the opinion, saying that the opinion of the United States Court at Kansas City would supersede anything the Attorney General of the State might say. That left the matter up to the United States Court. The suit was filed January 10, 1929, but it has not yet been argued. Then before the judge got around to giving the matter his consideration, that is, on February 20, 1929, the osteopath board at Kirksville, through Senator Hildreth, introduced a bill in the legislature authorizing osteopathic physicians in the State of Missouri to administer narcotics, and the Attorney General said that if that became a law the opinion of the Attorney General's office would be altered.

An attempt has been made to get a ruling that wherever the state specifically authorizes the use of narcotics in the practice of medicine the osteopaths should have that privilege. That bill came before the House and the Senate jointly as 660 in the House and 615 in the Senate. In the House it was brought first to a vote and was sent to the public health committee of the House, on which there are five physicians, one dentist, and one wife of a physician. We confidently supposed the bill would be killed in the House, owing to the talk of some of our own members, and owing to the diffidence on the part of those physicians to kill a bill that affected another branch of practitioners it was reported on the floor of the House without recommendation. They did not recommend that it be passed nor kill it, and in effect they said "Do as you please with it." The House amended it and struck everything out except the title, and the bill was dead.

Bill 615 over in the Senate had a better course. We have no senator in the House. There was no one to speak for the medical profession. Some of the senators sought advice from their home physicians, who were indifferent, and some of them were even told, "I don't care—they ought to have it." They overlooked the fact that by allowing the osteopaths the privilege to use narcotics it would open the door wide for them to enter our hospitals, because in every case the argument that has had the most effect in keeping them out of our hospitals has been the fact that they are not trained in the use of narcotics and drugs and the hospital people are trained along this line. One of the senators came back and said that he had talked to the doctors in his home town and they did not seem to care. However, that was not the attitude of the profession as a whole, and I wish to thank you for the prompt way in which you responded to the call for telegrams and letters. You held the bill from the 25th day of February until the first day of May before it got from the Senate over to the House. However, we were defeated in the Senate by two votes. It requires eighteen votes to pass a bill and they got nineteen. Personally, I think we got caught in the fight between the Senate and House over another matter. The school teachers were asking that certain monies be taken out of the school fund and given to every school teacher before the money was divided among the city and district schools, and that was a very popular measure because there was a contention because of the rights of the teachers south of the river and those north of the river, and in the course of that fight one of the senators said, "All right, if you would like to have the school teachers' bill killed, we have the osteopath bill and we will pass that and you can kill it in the House." In that way it passed the Senate and came to the House and has been there until the present time. It came up on the floor for consideration and was retired to the informal calendar. It had a rocky course. It came to the House and there were hundreds of other bills headed that way, but yet that little bill was the first thing to move rapidly. When I looked at the calendar of the House it was not on the calendar Wednesday morning. When I looked at the record of the journal of the House, it was not there. At ten o'clock Wednesday morning there was the entry that it had been withdrawn from the revision committee and turned over to the judiciary committee, had been revised by them and recommended that it pass, had been taken through and at three in the afternoon the revision committee had approved the judiciary committee's endorsement. Not only was that done but the record had been made between nine in the morning and three in the afternoon that all of this had been done. The next morning when I got the journal I found it had the same entry. Our representative, Mr. Condon, got some newspaper men to poll this committee. More than half of them said "There has been no consideration of that bill." Then your telegrams began pouring in asking for a hearing. There it was, all done, and the committee did not know it. We got five men ready to come and protest against the signing of that bill on account of irregular action, and when the bill was called the author placed it on the calendar. He saw the handwriting on the wall. At present it rests on the informal committee. That has been such a fight that I want you to take cognizance of the fact that as the law stands, if a young man studies medicine at

Washington University, at Ann Arbor, or at Chicago, and then comes to Missouri, he is told that to practice medicine and surgery it requires examination and a license from the State Board; but if he goes to Kirksville and studies from the same books, studies the same principles of medicine and surgery, he can practice in Missouri without any supervision of the State Board of Health. That is true in eye, ear, nose and throat, in diseases of children, and all branches.

I went to the office of the Secretary of State and looked up their articles of incorporation, to see if it could be that one thing was true in St. Louis and entirely different in Kirksville. I found the articles of incorporation had been standing there unchallenged all these years, giving this place at Kirksville the power to appoint a faculty that should teach all the things taught in medical colleges, and in addition osteopathy, and further, that it should do this in an effort to improve and change the medical profession and try to lift it from ignorance up to the point where osteopathy now stands. I commend these articles to your consideration. When they came before the committee of Senate they were asked what was their purpose, and they referred to their constitution and by-laws. It does not tell you what it is. We proposed that the definition in Webster's dictionary be applied, but they refused that and said they stood by their constitution and by-laws. If you can surpass that for unadulterated impudence you have a different conception of the thing from what I have. And yet some of our people say "Let them have it. They are all right." I think we should all realize that such people tend to drag down our practice act by encouraging conditions where young men may come in by the back door, without let or hindrance from the Board of Health. I do not know what the way is by which we will get a definition of osteopathy written into the constitution of Missouri. We failed to do it this year as an amendment to this bill, and the only reason was that we had nobody in the House. The shades of Senator Allee haunted me. But the osteopaths had men on the floor ready to tell of the miraculous work of osteopaths. I hope we will find a man in our organization who is true to the principles of medical education, who does not believe that things taught in St. Louis mean one thing, and the same thing from the same books taught at Kirksville is different—I hope such a man is found for the fifty-sixth session of the General Assembly.

I would like to say a word or two about the general hospital bill. That was a very popular measure in the last session. I obtained old files, at the request of Dr. Allee and the committee, of laws of the different states that have general hospitals. To my surprise I found that the principal plan outlined before us is not employed by any state in the Union. There is no state that has a general hospital for the free use of indigent citizens. They are all, except those for mental and nervous diseases, hospitals of the universities with teaching faculties. They have four classes of patients. They have the indigent class of patients sent in directly by the counties; they have next a class of patients certified as people who pay their hospital bills, but not able to pay the doctor bills, and those they take care of at \$12 to \$20 a week, treatment furnished by the faculty of the state university; they have some well-to-do patients sent in by physicians on account of the advantages and opportunities for treatment at the state university, although in some states that is not allowed; then they have the interesting clinical cases sent in by doctors at the request of the faculty as being cases that are worthy of study by the classes—these are a high type of cases and pay their hospital bills. It became apparent as soon as this matter came up at Jefferson City that with only twenty-four million dollars revenue coming in, and the State University having three millions of that; with one-third of the state taxes going to the school fund, there was not money enough left to build the insane asylums we need to correct our troubles at the present time and at the same time build a general hospital. There was also a war between the State University and the eleemosynary board as to whether hospitals are a proper charge on education. The University declares it is not and the eleemosynary board declares it is. Consequently the Governor in his inaugural address considered the matter and it was worked out by the men in the House and Senate to authorize the Governor to appoint a commission, which he has done, of seven members. These men are to report before the 30th day of November, 1929, as to the amount needed to rebuild our insane asylums and other institutions. The findings of this commission will be turned over to the people of the State at election to vote whether there shall be a bond issue. If so, we are asking for three million dollars to build a general hospital to serve a double purpose—to serve as an eleemosynary institution for those who cannot pay, and also for those who can pay for the service they receive, and for patients that may be used for the benefit of the medical students at the University, and reestablish the four years of medicine.

Dr. T. W. Cotton, Van Buren: I want to recite my experience with the osteopath bill with my own Representative. I have been in conference with him on a number of occasions. He used to be a member of the judiciary committee. I said, "Just how did that bill get by your committee?" He replied, "I am ashamed to say that I do not know. I have

held myself in readiness to act, and I do not know when it was ordered out of my committee. I know nothing about it."

Dr. Leslie Randall, Licking, moved that the report of the Committee be adopted. Seconded and carried.

Dr. T. W. Cotton, Van Buren, read the report of the Committee on Publication as follows:

REPORT OF THE COMMITTEE ON PUBLICATION

Twelve issues of THE JOURNAL have appeared during the year and with few exceptions the issue was in the hands of the members on or before the first of the month. We are now in Volume 26, the twenty-sixth year of the publication of THE JOURNAL.

During 1928 THE JOURNAL contained 90 original articles, 58 editorials, 159 reports of county societies, the Annual Proceedings of our 1928 meeting, and the reports of other societies such as Washington University Medical School, Southwest Missouri Medical Society and the Kansas City Academy of Medicine. The Women's Auxiliary has sent in 20 reports which were published.

Volume 25, January, 1928, to December, 1928, contained a total of 596 reading pages, an average of 49 2/3 pages to each issue, and 486 advertising pages, an average of 40 1/2 advertising pages to each issue, an average of a little more than 90 pages in each issue.

THE JOURNAL received a total of 100 books for review, representing \$474 in price. 29 books were sent to the St. Louis Medical Society Library, 45 to Jackson County Medical Society Library and 6 to the library of the Medical School of the State University, 54 of these being reviewed during the year. Reviews of 114 books were published in THE JOURNAL.

For illustrations in THE JOURNAL the total cost was \$489.63.

THE JOURNAL earned in advertising an income of \$9,507.19. The expense of printing and mailing THE JOURNAL, including cost of illustrations, was \$7,956.64, leaving a net profit of \$1,550.55.

The Committee on Publication has had submitted to it during the year two propositions which have been held in abeyance until action could be taken at this meeting of the Association.

One is a proposition to remove from the advertising columns of THE JOURNAL the advertisement of a Kansas City X-ray concern, the objector saying that the physician in charge is not a member in good standing in the Association as his principal ground of objection. On investigation we learned that this position was not well taken since the operator is a member of the Association in good standing and again it is the opinion of your Committee that Section 5, Chapter XII, which provides that "Each County Society shall judge of the qualifications of its own members" and Section II, of the same chapter, which provides that "Each county society shall have general direction of the affairs of the profession in the county" clearly make it the duty of a member that has a grievance to submit his grievance to the county society first for adjustment.

The other is a county society that is dissatisfied with the rate of dues assessed by the State Association with possibly some other minor elements of discontent, which were voiced at a meeting of the county society and they requested that this action of protest on the part of their county society be published in THE JOURNAL so that other societies in the State might be advised of their action.

While THE JOURNAL of the Missouri State Medical Association is the official medium of medical news, yet its first duty is the dissemination of medical knowledge to its members, by publishing papers on scientific subjects, particularly those read and discussed by the members and visiting physicians at the meetings of the State Association and a large part of the available space is utilized for this purpose.

Again, while we believe that each and every member who feels that he has a grievance against the Association should have the privilege of a hearing, yet we very much doubt whether the proper place for this hearing is in the columns of THE JOURNAL, but that he should appear before the House of Delegates whose stipulated duty is "To make careful inquiry into the condition of the profession of each county in the State" and the By-Laws further provide that the House of Delegates shall approve all memorials and resolutions issued in the name of the Association before they shall become effective," therefore it is obvious that only the House of Delegates could consistently and with authority handle a proposition that is covered by its own By-Laws and that the publication of a formal protest against the operation of a By-Law of the State Association by a component county society is not conducive to harmony or for the best interest of the Association.

T. W. COTTON, Chairman,
M. A. BLISS,
C. O. DONALDSON.

This report was discussed by President, Dr. Frank I. Ridge; Kansas City; Dr. B. W. Hays, Jackson; Dr. W. H. Breuer, St. James.

Dr. W. H. Breuer, St. James, moved that the report be referred to the Council. Seconded and carried.

Dr. Charles E. Hyndman, St. Louis, read the report of the Committee on Defense as follows:

REPORT OF COMMITTEE ON DEFENSE

Cases pending May 1, 1928.....	17
Threats pending May 1, 1928.....	5
New cases during year.....	8
New threats during year.....	5
Cases settled during year.....	12
Threats which did not develop into suits.....	7
Threats pending May 1, 1929.....	3
Cases pending May 1, 1929.....	13
Financial assistance rendered during 1927-1928.....	\$300.00

We feel that this is a rather favorable report and that conditions are somewhat better than last year. We have only 13 cases and three threats pending, as against 17 cases and 5 threats of last year.

Out of the ten threats recorded, 7 have been disposed of in one way or another. Of the 12 cases settled during the year, seven were dropped or withdrawn, 3 resulted in verdicts against the physician, one verdict in favor of the defendant and one was a hung jury.

We feel that what improvement has been made is due largely to the unselfish cooperation of the physicians throughout the state. Your committee feels that this growing cooperation will do much to discourage the filing of unwarranted malpractice suits, which most of them are.

CHAS. E. HYNDMAN, Chairman,
M. L. KLINEFELTER,
O. B. ZEINERT.

On motion of Dr. O. C. Gebhart, Oregon, duly seconded, the report of the Committee was adopted.

Dr. Ralph L. Thompson, St. Louis, read the report of the Committee on Postgraduate Course as follows:

REPORT OF COMMITTEE ON POST-GRADUATE COURSE

The Committee on Postgraduate Course feels that the offerings of the State Association in this line have been much appreciated by the members throughout the state. Several societies have depended largely upon our service to provide them with speakers at a majority of their meetings. This is particularly true of Jasper County where the Committee sent 14 speakers to 9 meetings; Marion County, 6 speakers to 6 meetings; St. Francois County, 10 speakers to 4 meetings; and scattered throughout the state are special requests coming from societies for one or two speakers during the year. The Committee feels that the best influence from the Postgraduate Course can be obtained by providing two or more speakers for counties where an audience of from 25 to 50 people will be assured. For the smaller counties a speaker could be provided at least four times a year. Many of these smaller counties meet only quarterly, so the Committee is ready to aid them at every meeting.

Forty speakers have responded to calls this year for 59 meetings. We find the members of the Association respond to our request for their time and energy to carry out the purposes of the Postgraduate Committee with great willingness and at the sacrifice of personal convenience. Societies usually ask for the particular men they want and the particular subjects they want so that your Committee cannot be accused of favoritism or praised for the well rounded out selection of subjects that have been presented.

The expenses of the Committee were \$942.82.

RALPH L. THOMPSON, Chairman,
C. B. FRANCISCO,
GUY L. NOYES.

Dr. J. McH. Dean, St. Louis, moved that the report be adopted. Seconded by Dr. C. P. Dyer, Webster Groves, and carried.

The President appointed the following members of the Nominating Committee:

Nominating Committee

P. D. Gum, Chairman, West Plains.
R. C. Schooley, Odessa.
W. J. Bryan, Mt. Vernon.
A. P. Erich Schulz, St. Charles
E. J. E. Evans, Kansas City

Ralph L. Thompson, St. Louis.
W. L. Allee, Eldon.
H. B. Goodrich, Hannibal.
F. G. Nifong, Columbia.
O. C. Gebhart, Oregon.
On motion of Dr. Joseph W. Love, Springfield,
the House of Delegates adjourned until 3 o'clock.

Monday, May 13, 1929—Afternoon Session

The House of Delegates was called to order at 3:30 p. m., by the President, Dr. Frank I. Ridge.
Dr. A. R. McComas, Surgeon, read the Report of the Council as follows:

REPORT OF THE COUNCIL

The Executive Committee of the Council has held five meetings since the last Annual Session at Columbia, and the Council has held one meeting. The midwinter meeting of the Council convened at Kansas City, December 6, 1928.

Executive Committee Meeting of September 19, 1928

At the meeting of the Executive Committee in St. Louis, September 19, 1928, President Ridge announced the resignation of Dr. H. E. Pearse, Kansas City, as chairman and member of the Committee on Public Policy, and made his demand for acceptance so strong that the president acceded. In his place President Ridge appointed Dr. W. L. Allee, Eldon, as chairman of the Committee, and Dr. Robert L. Hamilton, Richmond, as a member.

Dr. T. J. Downing, New London, Councilor of the 7th District, handed in his resignation which the President accepted with regrets. Dr. Downing has been a faithful member of the Council for many years. In his place the President appointed Dr. H. B. Goodrich, Hannibal.

All these appointments were approved by the Executive Committee.

An appeal by the Council of the Jackson County Medical Society from the action of the Jackson County Medical Society in failing to censure a member charged with unprofessional conduct was heard by the Committee. The By-Laws of the State Association give the county society the right to appeal to the Council at all times, but this appeal did not come from the Jackson County Medical Society but from a subcommittee, the Council of that Society. The appeal therefore, was ordered returned to the Jackson County Medical Society for the reason that it had not been made in proper form.

Executive Committee Meeting, December 19, 1928

At this meeting held in the Tiger Hotel, Columbia, December 19, 1928, the secretary read the proposed bill for a State General Hospital. It was the consensus of opinion that the hospital should be under the control of the State University. A conference with Governor Caulfield was requested and a committee appointed to wait upon him relative to the establishment of a State General Hospital.

Legislative matters were discussed and Dr. H. E. Pearse, Kansas City, was employed to represent the Association at Jefferson City during the session of the legislature in 1929.

Executive Committee Meeting, January 6, 1929

At this meeting, held in St. Louis, Dr. Shutt, President of the St. Louis Medical Society, submitted a proposition requesting the State Medical Association to finance the employment of a full time executive secretary for St. Louis Medical Society for one year provided the St. Louis Medical Society would guarantee the continuation of the executive secretary for a period of at least two years thereafter, realizing the great amount of good to be accomplished to the people and profession of the state and to thwart the ever increasing tendency of lay organizations to exploit the doctor. A motion was adopted that the Executive Committee recommend to the House of Delegates at the Springfield session that the State Association finance the employment of a full time secretary for each of the larger unit societies as the finances will permit provided the societies will guarantee the continuation of the employment of the secretary for two years thereafter. The Committee further recommends that the adoption of this plan for St. Louis Medical Society to begin in 1929, the amount not to exceed \$5000.00.

Executive Committee Meeting, February 22, 1929

This meeting was held at Kansas City, February 22, 1929. President Ridge spoke of the State General Hospital to be under the control of the State University instead of the Eleemosynary Board, but no action was taken.

The story published in the St. Louis Star of February 20, relating to the issuance of licenses by the State Board of Health to certain graduates of unapproved medical schools by reciprocity with the Arkansas Eclectic Board of Medical

Examiners, was discussed. This discussion led to the adoption of a motion to send a message to Governor Caulfield stating that the Executive Committee of the Missouri State Medical Association had learned of the action of the State Board of Health and that if the reports compass the whole situation the Executive Committee desired to enter a vigorous protest and suggested that a thorough examination be made and suitable action taken.

This message was ordered conveyed in person to Governor Caulfield by a committee composed of the following: President Frank I. Ridge, Kansas City; Chairman A. R. McComas, Sturgeon; H. E. Pearse, Kansas City; W. H. Breuer, St. James; W. L. Allee, Eldon.

Dr. Stowers reported progress on the work of the program for the Annual Meeting and stated that nearly every available moment was filled and that six guests had been invited to deliver addresses.

Meeting of the Council, December 6, 1928

This was the midwinter session of the Council held in Kansas City December 6, 1928, eighteen members being present with the officers and members of various committees.

The date of the Seventy-Second Annual Meeting was fixed for May 13, 14, 15, 16, 1929. The General Committee on Arrangements was appointed consisting of Dr. W. M. West, Monett, Chairman; J. C. B. Davis, Willow Springs; Robert M. James, Joplin. On nomination of this committee, Dr. H. A. Lowe, Springfield, was elected chairman of the local committee on arrangements.

Dr. R. M. Schaffler, Kansas City, was given the floor and offered a supplementary appeal in the case of the Jackson County Medical Society against Dr. A. L. Skoog, signed by sixteen members of the Jackson County Medical Society, and appealed to the Council of the State Association from the action of the Jackson County Medical Society in failing to adopt the report of the Board of Censors which report found Dr. Skoog guilty and recommended suspension. A special committee was appointed to hear this appeal and report to the Council before adjournment.

The Committee on Public Policy reported on the status of measures to be introduced in the legislature including an amendment to the Workmen's Compensation Law to eliminate the \$250 clause for all expense, hospital and medical, during the first sixty days following the injury.

The erection of a State General Hospital was discussed and the proposal to create a department of nervous and mental diseases to do away with the objectionable medical testimony.

Dr. C. E. Hyndman, St. Louis, Chairman of the Defense Committee, reported satisfactory progress in realization by members on the dangers of careless and thoughtless criticisms of fellow members when called to treat a case. He said there were seventeen suits pending and four threats.

Dr. J. W. Lovc, Springfield, Chairman of the Committee on Medical Economics, reported progress.

Councilors reported satisfactory conditions in the various districts.

The Council expressed its sympathy to Dr. T. B. M. Craig, Nevada, Councilor of the Seventeenth District, who was ill, and to Dr. W. J. Ferguson, Sedalia, also ill, and to Dr. Frank G. Nifong, Columbia, in the loss of his mother-in-law who had been a companion and invalid in his home for many years.

Since these actions were taken both Drs. Craig and Ferguson have passed on to their reward.

The special committee appointed to hear the appeal of the members of the Jackson County Medical Society in the trial of A. L. Skoog, reported that they had reviewed the evidence as submitted by the Board of Censors of the Jackson County Medical Society and found the findings of the Board of Censors with the recommendation of suspension were just and lenient, and approved the findings. The committee recommended that the Council reprimand the Jackson County Medical Society. This report was adopted unanimously.

On motion, the Committee on Scientific Work was authorized to invite guests from outside of Missouri to address our Association at the Annual Meeting in Springfield and pay their expenses for the trip.

Executive Committee Meeting, May 5, 1929

At this meeting held in St. Louis, May 5, 1929, the Executive Committee heard the report of the special committee appointed to wait upon Governor Caulfield and protest against the action of the Board of Health in issuing licenses on reciprocity with the Arkansas Eclectic Board of Examiners. The committee reported that they had a short conference with the Governor who was exceedingly busy and a conference with the Governor's secretary after which the Governor indicated that he would invite a conference with him of the president and other executive officers of the State Medical Association as soon as he could give the matter adequate attention. We are still waiting upon the Governor's pleasure in calling this meeting.

President Ridge called attention of the committee to the long and faithful service in activities of the State Medical

Association of Doctor Wm. H. Breuer of St. James and his familiarity with medical licensure and medical education as well as the administration of public health activities and moved that the Executive Committee recommend to Governor Caulfield and endorse Doctor Breuer for the position of secretary of the State Board of Health and State Health Commissioner. The motion was duly seconded and carried unanimously and the secretary was instructed to convey that endorsement to Governor Caulfield which has been done. The Chairman reminded the committee of the action of the previous meeting, proposing to endorse or to recommend to the House of Delegates, financing of a financial secretary for St. Louis Medical Society.

President Ridge suggested that the President in his message to the House recommend this action giving the reasons why the employment of an executive secretary by large component societies should be encouraged.

The secretary read the resignation of Doctor W. C. Gayler as Councilor of the 20th District.

President Ridge accepted the resignation and nominated Doctor Fred C. Simon, St. Louis, as Councilor of the 20th District to fill the unexpired term. On motion this nomination was approved.

On motion by Doctor Breuer, Doctor Simon was elected a member of the Executive Committee to fill the place made vacant by Doctor Gayler.

The Council approved the report of the Publication Committee.

The Council appointed a committee to work out a plan for a Burial Fund with Dr. Frank I. Ridge, Kansas City, Chairman; Drs. R. M. James, Joplin; J. C. B. Davis, Willow Springs, and O. S. Gilliland, Kansas City. The Memorial Fund was also referred to this committee.

The Council approves the President's recommendation that county societies endeavor to establish contact with newspapers for cooperation in making medical articles acceptable previous to publication in the newspapers.

The Council approved the recommendation that delegates to the American Medical Association submit a recommendation to the American Medical Association that the fifth year in medical education may be fulfilled by students being employed in vacation by physicians as assistants between the second and third years and the third and fourth years to take the place of hospital internship when this is feasible.

The report of the Council was discussed by Dr. W. W. Johnston, Farmington; Dr. W. A. Clark, Jefferson City; President Ridge; Dr. W. F. Holbrook, Kansas City; Dr. L. C. Chenoweth, Joplin, Dr. A. R. McComas, Sturgeon.

Dr. W. A. Clark, of Jefferson City, moved to amend the report by omitting that part referring to a recommendation to Governor Caulfield endorsing Dr. W. H. Breuer, St. James, for Secretary of the State Board of Health. The motion was seconded by Dr. Walter F. Holbrook, Kansas City. On vote the motion was defeated.

Dr. P. D. Gum, West Plains, moved that the report of the Council be adopted as read. Seconded and carried.

The Secretary read an amendment to the By-Laws submitted by Dr. J. J. Gaines, Excelsior Springs, to exempt from the payment of annual dues and assessments those county society secretaries who had rendered especially valued service, after the first year of their incumbency as secretary of the county medical society.

This amendment was referred to the Reference Committee on Revision of the Constitution and By-Laws.

Dr. W. G. Patton, St. Louis, offered the following resolution:

That the House of Delegates consider the advisability of the appointment of a committee whose duty it shall be to collect and study facts concerning medico-social problems, to publish occasional reports in THE JOURNAL, and to submit a final working plan.

This resolution was referred to the Committee on Miscellaneous Affairs.

Selection of Next Place of Meeting

Nominations for the next place of meeting were called for and Dr. C. H. Suddarth invited the Association to meet in Excelsior Springs in 1930.

This nomination was seconded by Dr. Spence Redman, Platte City.

Dr. C. W. Hamlin, Palmyra, invited the Association to meet at Hannibal. This was seconded by Dr. H. B. Goodrich, Hannibal.

On vote Hannibal received the majority of votes and was declared the place for holding the 1930 Session.

On motion the House of Delegates adjourned until Wednesday afternoon at 3:30 o'clock.

Wednesday, May 15, 1929—Afternoon Session

The House of Delegates was called to order by the President, Dr. Frank I. Ridge, Kansas City, Wednesday, May 15, 1929, at 3:30 p. m.

The Secretary read the minutes of the preceding sessions.

Dr. C. H. Suddarth moved that the minutes be adopted as read. Seconded by Dr. D. D. Stofor, Kansas City, and carried.

Dr. Daniel Morton, St. Joseph, Chairman of the Reference Committee on Amendments to the Constitution and By-Laws, reported as follows:

Report of Reference Committee on Revision of Constitution and By-Laws

We, your Reference Committee on the Revision of the Constitution and By-Laws recommend non-concurrence in the amendment submitted by Dr. J. J. Gaines, Excelsior Springs, to exempt from dues and assessments county secretaries after the first year of their incumbency in office.

DANIEL MORTON, Chairman,
A. P. ERICH SCHULZ,
A. H. MARSHALL,
The Committee.

Dr. S. L. Baysinger, Rolla, moved that the report of the Committee be adopted. Seconded by Dr. J. McH. Dean, St. Louis, and carried.

Dr. H. Lewis Hess, Kansas City, reported for the Reference Committee on Miscellaneous Affairs as follows:

Report of the Reference Committee on Miscellaneous Affairs

Your Committee on Miscellaneous Business had before it the resolution of Dr. W. G. Patton, St. Louis.

Your Reference Committee recommends the adoption of this resolution.

H. LEWIS HESS,
F. C. SIMON,
Committee.

Dr. H. Lewis Hess, Kansas City, moved that the report of the Reference Committee be adopted. Seconded by Dr. R. B. H. Gradwohl, St. Louis. On vote the motion was lost.

Dr. H. Lewis Hess, Kansas City, moved that the resolution be referred to the Committee on Medical Economics. Seconded and carried.

Dr. P. D. Gum, West Plains, read the Report of the Nominating Committee as follows:

Report of Nominating Committee

The Committee on Nominations beg to report the nomination of the following delegates to the American Medical Association:

Emmett P. North, St. Louis, Delegate; R. A. Woolsey, St. Louis, Alternate.

E. J. Goodwin, St. Louis, Delegate; W. M. West, Monett, Alternate.

These are nominated for a period of two years, 1929-1931. S. L. Baysinger, Rolla, Delegate; A. H. Marshall, Charleston, Alternate.

These are to fill the unexpired term of W. J. Ferguson, deceased.

For Councilors:

- 2nd District, Daniel Morton, St. Joseph.
- 4th District, George M. Bristow, Princeton.
- 6th District, J. S. Gashwiler, Novinger.
- 8th District, B. K. Stumberg, St. Charles.
- 10th District, Don A. Barnhart, Huntsville.
- 12th District, Spence Redman, Platte City.
- 14th District, C. T. Ryland, Lexington.
- 16th District, J. T. Hornback, Nevada.

18th District, W. L. Allee, Eldon.
20th District, Ralph L. Thompson, St. Louis.
22nd District, U. P. Haw, Benton.
24th District, A. R. Rowe, Poplar Bluff.
26th District, W. H. Breuer, St. James.
28th District, W. M. West, Monett.
P. D. GUM, Chairman.

Dr. Gum moved the adoption of the report. Seconded by Dr. Suddarth, Excelsior Springs, and carried.

Dr. C. H. Suddarth, Excelsior Springs, moved that the nominees in the report of the Committee on Nominations be declared duly elected. Seconded by several and carried.

President Ridge called for nominations for President-Elect.

Nomination of President-Elect

Dr. Ross A. Woolsey, St. Louis, nominated Dr. W. C. Gayler, St. Louis, for President-Elect. Seconded by Dr. P. F. Cole, Springfield, and others.

Dr. C. H. Dixon, Moberly, moved that nominations be closed and that the Secretary cast the ballot of the House of Delegates for the election of Dr. Gayler for President-Elect. Seconded by Dr. Fred Bailey, St. Louis, and carried.

The Secretary cast the ballot of the House of Delegates and Dr. W. C. Gayler was declared duly elected President-Elect.

Dr. Joseph W. Love, Springfield, and Dr. C. E. Hyndman, St. Louis, escorted President-Elect Cotton to the chair.

PRESIDENT RIDGE: Gentlemen of the House of Delegates. I take pleasure in presenting to you Dr. T. W. Cotton, the new President, who will take charge of the meeting.

Remarks of President Cotton

DR. T. W. COTTON, Van Buren: Down in my town a few months ago we were having an election to determine the political complexion of this country for the next quadrennial. A little girl just big enough to go to school was going along one day—and by-the-way I might say that among other things political we had a number of Hoover buttons cut in colors and made very attractive. This little girl got hold of one of those buttons and was wearing it very proudly when she met some other school children and one of them said, "Mary, you can't wear that button." "Yes, I can." "No, you can't." "Well, I'll ask teacher." The teacher said, "Surely you can, if your papa votes the Republican ticket. Is he a Republican?" The little girl thought a minute and then said, "I don't know. My papa has not been baptized yet." That is the way I feel. I am new, I am just getting my baptism into this work.

As I see the situation now, the purpose of the activities of this Association is greater efficiency in medical work, in our medical activities, to the end that we may serve the people of Missouri to better advantage, that we may give the population of this great state better health conditions, better sanitation, better anything that tends to the uplift of humanity. As such we have a great work before us—a work second to nothing else, and I do not put the ministry ahead of the medical man's work. If we are going to render the best service in our power there are some things that we can do as a State Association that will help, that will put us in better position to give this service. We have heard some discussion of the State Board of Health, politics in medicine, and all that. I go back to the activities of the State Board of Health. I served on that body for four years myself and I know something about the activities of that Board, I know some of its trials and hardships, I know that we were wonderfully handicapped during the administration when I was a member. If I remember rightly, we had only about \$32,000 for two years. We could not do much with that. Since that time the Board has been able, either through their own efforts or somebody else's to get \$300,000 assigned them, and I think that is commendable. The State Board of Health can do a lot in the way of sanitation. I think that work has been satisfactory as far as I know. The State Board has also had to do with the celebrated Horton case, and I understand it was finally decided in the interest of this Association. I believe the State Board should have more commendation, and I believe there should be close cooperation between the activities of this Association and those of the State Board of Health, at least closer than it is. It occurs to me that this organization ought to be so coordinated with

the activities of anything medical that it would be in close touch with it.

I am not in accord with the idea that this Association should not make recommendations to the Governor as to the appointees on these boards. To my mind it is the eminently proper thing to do. Under the Workmen's Compensation Act those people go out and ask the Governor to appoint a certain man, and properly so. The state bar association does not hesitate to recommend to the Governor who shall be appointed on their board. Why should not the State Medical Association, the head of organized medicine, a body that has made advances in the relief of suffering, in discoveries and research—why should we hesitate to make recommendations for something that pertains to health and the betterment of the population of the state? I think we have a right to suggest to the Governor those that this organization wishes to endorse for anything connected with public health and sanitation. That is my idea. Perhaps you do not agree with me, but I feel that way at this time. If anything goes wrong in my town—we have had some trouble with the drinking water—they refer it to the doctor. In any kind of emergency the doctor is consulted. Why should the doctors not be consulted about the appointment of officers that have to do with these things? So it occurs to me that it would be fitting and right that an organization like the State Board of Health should bring a report of their activities to the meetings of this body. Some of us are health officers in our counties and we could be in better touch with what other people are trying to do. It would be better for all concerned in the way of cooperation. So far as there being politics in this thing, I am a Democrat, but I am a doctor before I am a Democrat. I think a doctor should be a physician, not a politician, and so far as getting politics into medicine, I think we might put a little medicine into politics to advantage.

I think the Governor is a man of judgment, that he stands for the uplift and progress of the human family in Missouri, and I think he will listen to the endorsement that comes from this Association, so I am heartily in favor of it, if it meets with the approval of the Association. However, the President is the servant of the Association. Whatever the Association wants at my hands I will do the best I can to follow your wishes. I thank you for the honor you have given me.

Dr. P. F. Cole, Springfield, and Dr. R. A. Woolsey, St. Louis, escorted the newly elected President-Elect Dr. W. C. Gayler, St. Louis, to the chair.

President Ridge introduced Dr. Gayler to the members and he spoke as follows:

Remarks of President-Elect Gayler

DR. W. C. GAYLER, St. Louis: I am extremely grateful to you for this honor, the greatest honor in the gift of the Missouri State Medical Association. I will not make a speech. This is a scientific organization, and a social organization, and it is also banded together for mutual protection, and that being so it follows that we must harmonize, we must not quarrel among ourselves. I have no speech, but I cannot express to you how grateful I am.

On motion the House of Delegates adjourned *sine die*.

MINUTES OF THE COUNCIL

Kentwood Arms Hotel

Monday Afternoon, May 13, 1929

The first meeting of the Council of the Missouri State Medical Association, held in the Kentwood Arms Hotel, Springfield, Monday, May 13, 1929, was called to order by the Chairman, Dr. A. R. McComas, Sturgeon, at 1:00 p. m. Secretary Goodwin called the roll and twenty members responded as follows:

1st District, O. C. Gebhart, Oregon.
3rd District, J. A. Crockett, Stanberry.
7th District, H. B. Goodrich, Hannibal.
8th District, B. K. Stumberg, St. Charles.
9th District, A. R. McComas, Sturgeon.
10th District, D. A. Barnhart, Huntsville.
11th District, J. H. Timberman, Chillicothe.
12th District, Spence Redman, Platte City.
13th District, O. S. Gilliland, Kansas City.
16th District, J. T. Hornback, Nevada.
17th District, Guy Titsworth, Sedalia.
18th District, W. L. Allee, Eldon.

19th District, J. S. Summers, Jefferson City.

20th District, F. C. Simon, St. Louis.

21st District, Thos. F. Estel, Altenburg.

23rd District, J. B. Luten, Caruthersville.

26th District, W. H. Breuer, St. James.

27th District, J. C. B. Davis, Willow Springs.

28th District, W. M. West, Monett.

29th District, R. M. James, Joplin.

Dr. Spence Redman, Platte City, moved that the minutes of the 1928 Session be approved as published in *THE JOURNAL*. Seconded and carried.

The Chairman, Dr. A. R. McComas, Sturgeon, read the report of the Executive Committee.

Dr. J. C. B. Davis, Willow Springs, moved that the report be approved and made the report of the Council to the House of Delegates. Seconded and carried. (See page 363.)

The report of the Publication Committee referred by the House of Delegates, was discussed. That portion referring to an objection to an advertisement of a Kansas City Roentgen Ray Institute was taken up.

The question was discussed by Dr. O. S. Gilliland, Kansas City; Dr. O. C. Gebhart, Oregon; Dr. B. K. Stumberg, St. Charles; Dr. R. M. James, Joplin; Dr. W. M. West, Monett; Dr. W. H. Breuer, St. James; Dr. D. A. Barnhart, Huntsville.

Dr. W. H. Breuer, St. James, moved that the action of the Publication Committee be sustained and the matter referred to Dr. O. S. Gilliland, Kansas City, Councilor, 13th District, for his investigation. Seconded and carried.

Dr. O. C. Gebhart, Oregon, moved that the action of the Publication Committee concerning the publication of certain minutes of the Cape Girardeau Medical Society be approved. Seconded and carried.

Dr. W. H. Breuer, St. James, moved that the Secretary convey the appreciative sentiments of the Missouri State Medical Association to the *St. Louis Post-Dispatch* and commend the action of that newspaper in excluding the advertisements of questionable medicines, institutes, and doctors, as a forward step in the protection of the public health. Seconded and carried.

Dr. W. L. Allee, Eldon, moved that the Council through the Secretary send a telegram to Senators McCawley, Brogan, Kinney and Warner thanking them for their opposition to the passage of Senate Bill No. 615, a Bill that would give osteopaths the right to administer narcotics. Seconded and carried.

The Chairman appointed the following Auditing Committee:

Dr. O. C. Gebhart, Oregon, Chairman.

Dr. B. K. Stumberg, St. Charles.

Dr. J. C. B. Davis, Willow Springs.

The President's message and recommendations were taken up and the proposals to establish a burial fund and memorial fund were discussed.

Dr. G. W. Hawkins, Salisbury, moved that a committee be appointed to get this proposition before each County Medical Society and gather data about the feasibility of the plan and report to the House of Delegates at the Annual Meeting in 1930. Seconded and carried.

The Chairman appointed the following members on this committee, Frank I. Ridge, Kansas City, Chairman; R. M. James, Joplin; J. C. B. Davis, Willow Springs; O. S. Gilliland, Kansas City.

Wednesday Afternoon, May 15, 1929

The second meeting of the Council was held at

3:00 p. m. in the Kentwood Arms Hotel, Springfield, the Chairman, Dr. A. R. McComas, presiding.

The Secretary read the minutes of the previous meeting.

Dr. D. A. Barnhart, Huntsville, moved that the minutes be approved. Seconded and carried.

Chairman McComas mentioned a letter from an insurance company offering a plan for insurance for all the members of the Association. On motion this letter was referred to the Special Committee on Burial Fund.

The Secretary read the report of the Auditing Committee as follows:

Report of the Auditing Committee

We, your Auditing Committee, have today examined the books of the Secretary and the books of the Treasurer and find them correct.

OLIVER C. GEBHART, Chairman.

J. C. B. DAVIS,

B. KURT STUMBERG,

Dr. Spence Redman, Platte City, moved that the report of the Auditing Committee be adopted. Seconded and carried.

Dr. W. H. Breuer, St. James, moved that the Council set aside \$5,000 in a special fund to be known as the St. Louis Medical Society Executive Secretary's Salary Fund, to be paid out monthly by voucher for one year, provided that the St. Louis Medical Society file with the Executive Committee of the Council a guarantee that the Society has on hand a fund sufficient to maintain the executive secretary for an additional two years; and further guarantee that the St. Louis Medical Society will maintain the executive secretary for an additional period of two years or longer. Seconded and carried.

The Secretary read a letter from Dr. C. T. Ryland, Lexington, Councilor of the 14th District, regretting his absence from the meeting which he said was due to his illness.

The election of officers was the next order of business.

Dr. W. H. Breuer, St. James, nominated Dr. G. W. Hawkins to succeed himself as Treasurer of the Association. Seconded by Dr. D. A. Barnhart.

Dr. J. H. Timberman, Chillicothe, moved that the nominations be closed and that the Secretary cast the ballot for the election of Dr. Hawkins as Treasurer. Seconded by Dr. B. K. Stumberg, St. Charles, and carried.

The Secretary cast the ballot and Dr. Hawkins was elected Treasurer.

Dr. W. L. Allee, Eldon, nominated Dr. E. J. Goodwin, St. Louis, for Secretary-Editor of the Association. It was seconded by Dr. D. A. Barnhart, Huntsville, and others.

Dr. W. H. Breuer, St. James, moved that the nominations be closed and the Chairman cast the ballot for the election of Dr. Goodwin. Seconded by Dr. B. K. Stumberg, St. Charles, and carried.

The Chairman cast the ballot and Dr. Goodwin was declared elected Secretary-Editor.

Dr. W. H. Breuer, St. James, moved that the Council rise and vote standing unanimously for the election of Dr. A. R. McComas, Sturgeon, for Chairman of the Council. This motion was duly seconded and carried and the members rose in unanimous vote for the reelection of Dr. McComas for Chairman.

Dr. D. A. Barnhart, Huntsville, nominated Dr. W. H. Breuer, St. James, for vice chairman of the Council. Dr. Guy Titsworth, Sedalia, seconded the nomination and moved that the nomination be closed

and that the chairman cast the ballot for the election of Dr. W. H. Breuer.

The chairman cast the ballot and Dr. Breuer was declared elected vice chairman.

On motion of Dr. W. L. Allee, Eldon, duly seconded and carried, the following were elected on the executive committee of the Council: A. R. McComas, Sturgeon, Chairman; W. H. Breuer, St. James; Ralph L. Thompson, St. Louis.

On motion the Council adjourned *sine die*.

MINUTES OF THE GENERAL MEETING

Kentwood Arms Hotel, Springfield, Tuesday, May 14, 1929—Morning Session

The first scientific session of the 72nd Annual Meeting of the Missouri State Medical Association convened at Springfield, Tuesday morning, May 14, 1929, at 8:30 a. m., the President, Dr. Frank I. Ridge, Kansas City, presiding.

The following papers were read in the Symposium on Neurology:

Dr. E. T. Gibson, Kansas City, read a paper entitled "Sequelae of Acute Infections."

Dr. G. Wilse Robinson, Kansas City, read a paper entitled "Sequelae of Encephalitis."

These papers were discussed by Drs. Hermon S. Major, Kansas City; C. H. Suddarth, Excelsior Springs; Frank I. Ridge, Kansas City; and, in closing, by Dr. Gibson and Dr. Robinson.

Dr. A. D. Carr, St. Louis, read a paper on "Modern Methods of Treatment in Neurosyphilis." This paper was discussed by Drs. G. Wilse Robinson, Kansas City; Ralph L. Thompson, St. Louis; E. T. Gibson, Kansas City, and, in closing, by Dr. A. D. Carr.

Dr. Val B. Satterfield, St. Louis, read a paper entitled "Differential Diagnosis of Common Mental Diseases."

Dr. Peter Bassoe, Chicago, read a paper entitled "Our Present Knowledge of the Psychoneuroses, With Especial Reference to So-Called Neurasthenia."

Dr. Joseph Grindon, St. Louis, read a paper on "Feigned Eruptions."

Dr. Charles H. Eyermann, St. Louis, read a paper entitled "Diagnosis of Allergy," which was discussed by Drs. Joseph Grindon, St. Louis; D. D. Stofer, Kansas City; Dr. Eyermann, closing.

Dr. F. C. Helwig, Kansas City, read a paper entitled "Malta Fever."

Dr. Charles W. Thierry, St. Louis, read a paper on "Some Medico-Social Aspects: With Particular Reference to the Dependent Case."

Dr. W. G. Patton, St. Louis, offered the following resolution:

I move that the House of Delegates consider the advisability of the appointment of a committee whose duty it shall be to collect and study the facts concerning medico-social problems, to publish occasional reports in THE JOURNAL, and to submit a final working plan.

This was referred to the House of Delegates.

Tuesday, May 14, 1929—Afternoon Session

The second scientific session of the Annual Meeting convened at 1:40 p. m., the President Dr. Frank I. Ridge, Kansas City, presiding.

The following papers were read in the Symposium on Obstetrics:

"Control of Pain in Childbirth by the Morphine-Scopolamine Method," by Dr. Otto Krebs, St. Louis.

"Control of Pain in Childbirth by the Gwathmey Method," by Dr. E. C. White, Kansas City.

"Control of Pain in Childbirth by Other Methods," by Dr. J. Milton Singleton, Kansas City.

The symposium was discussed by Drs. Urban J. Busick, Springfield; Treston R. Ayars, St. Louis; Drs. Krebs and White, closing.

Dr. Joseph D. James, Springfield, read a paper on "Postpartum and Postnatal Care."

Dr. W. L. Clapper, St. Louis, read a paper entitled "Management of Difficult Head Presentation."

Dr. C. H. Wallace, St. Joseph, read a paper on "Observations on Spinal Anesthesia: Report of Six Hundred Cases."

Dr. Dudley A. Robnett, Columbia, read a paper entitled "The Uterine Curettage as a Diagnostic Procedure," which was discussed by Dr. John W. Barson, Joplin, and, in closing, by Dr. Robnett.

A paper on "Uterine Retrodisplacement and Its Incident Pathology" was read by Dr. R. U. Stevens, Kansas City. The paper was discussed by Dr. John W. Barson, Joplin.

Dr. L. G. McCutchen, St. Louis, read a paper entitled "Diagnosis of Abdominal Tumors With the X-Ray After the Administration of Opaque Media."

Tuesday, May 14, 1929—Evening Session

The Tuesday evening scientific session of the Annual Meeting convened at 7:30 p. m., President Frank I. Ridge, Kansas City, in the chair.

A paper entitled "Treatment of Chronic Heart Disease" was read by Dr. Sinclair Luton, St. Louis.

Dr. E. J. Schisler, St. Louis, read a paper on "Aneurysm of the Aorta; Verification of Diagnosis."

Dr. A. Morris Ginsberg, Kansas City, read a paper entitled "Fatal Hemorrhage From Mitral Stenosis; Report of Two Cases," discussed by Dr. Albert J. Welch, Kansas City.

Dr. J. H. J. Upham, Columbus, Ohio, read a paper on "Fetal Liver Feeding in Aplastic Anemia."

Dr. R. B. H. Gradwohl, St. Louis, read a paper entitled "The Schilling Differential Blood Count With Reference to Diagnosis and Prognosis."

Dr. O. P. J. Falk, St. Louis, read a paper entitled "Influence of Etiology on the Prognosis of Heart Disease."

Wednesday, May 15, 1929—Morning Session

The Wednesday morning scientific session convened at 8:45 a. m., President Frank I. Ridge, Kansas City, presiding.

The following papers were read in the Symposium on Chest Diseases:

Dr. W. J. Bryan, Mt. Vernon, read a paper entitled "Nontuberculous Conditions Which Simulate Tuberculosis."

Dr. Preston M. Hickey, Ann Arbor, Michigan, read a paper entitled "Pulmonary Neoplasm."

Dr. Stuart Pritchard, Battle Creek, Michigan, read a paper entitled "Relation of Pain to Pulmonary Tuberculosis."

Dr. Evarts A. Graham, St. Louis, read a paper on "The Surgery of Pulmonary Tuberculosis."

Dr. H. E. Kleinschmidt, New York City, read a paper entitled "Tuberculosis in Childhood."

Dr. R. S. Battersby, Columbia, read a paper entitled "Early Diagnosis of Tuberculosis in Children."

Dr. Alphonse McMahon, St. Louis, read a paper on "Basal Metabolism in Pulmonary Tuberculosis."

Dr. Albert S. Welch, Kansas City, read a paper entitled "Pulmonary Lesions Secondary to Dental Infection."

There was no discussion of the above papers.

Wednesday, May 15, 1929—Afternoon Session

The Wednesday afternoon session convened at 2:15, Dr. T. W. Cotton, Van Buren, President-Elect, presiding.

Dr. E. E. Glenn, Mt. Vernon, read a paper, written in conjunction with Dr. B. J. McGinnis, Mt. Vernon, entitled "The Treatment of Laryngeal Tuberculosis: Demonstration of Cases."

Dr. Stuart Pritchard, Battle Creek, Michigan, read a paper entitled "The Etiology of Cough."

This paper was discussed by Dr. Preston M. Hickey, Ann Arbor, Michigan.

Dr. F. Reder, St. Louis, read a paper entitled "Some of the Causes of Death Following Operation for Appendicitis." No discussion.

Dr. D. D. Stofer, Kansas City, offered the following motion:

I move that the Missouri State Medical Association, in convention assembled, extend to the City of Cleveland and the Cleveland Clinic its deepest sympathy, assuring them that we stand by in any way to assist and that the Secretary be instructed to send such a telegram.

Motion unanimously carried.

Wednesday, May 15, 1929—Evening Session

The Wednesday evening session of the Annual Meeting convened at 8:00 p. m., President Frank I. Ridge, Kansas City, presiding.

The President delivered his Annual Address.

Dr. T. W. Cotton delivered his address as President-Elect.

Dr. J. H. J. Upham, Columbus, Ohio, read a paper on "Preventive Medicine, Past, Present and Future."

Thursday, May 16, 1929—Morning Session

The Thursday morning scientific session of the Annual Meeting, convened at 9:00 a. m., President Frank I. Ridge, Kansas City, presiding.

The following papers were read in the Symposium on Fractures:

Dr. Vilray P. Blair, St. Louis, read a paper on "Fractures of the Jaw."

Dr. Rex L. Diveley, Kansas City, read a paper on "Fractures of the Upper Extremity."

Dr. H. Lewis Hess, Kansas City, read a paper on "Fractures of the Lower Extremity."

Dr. Archer O'Reilly, St. Louis, read a paper entitled "Fractures of the Spine."

The symposium was discussed by Drs. Robert M. Schauffler, Kansas City; L. G. McCutchen, St. Louis; Frank J. Tainter, St. Louis; John W. Barson, Joplin; Dr. Rex L. Diveley, closing.

Dr. Philip D. Wilson, Boston, read a paper entitled "General Considerations of Treatment of Fractures."

Dr. Logan Clendening, Kansas City, read a paper entitled "The Greatest Problem of the Internist."

Dr. Caryl Potter, St. Joseph, read a paper entitled "Closure Without Drainage."

Thursday, May 17, 1929—Afternoon Session

The Thursday afternoon scientific session of the Annual Meeting convened at 1:45 p. m., President Frank I. Ridge, Kansas City, presiding.

Dr. F. D. Gorham, St. Louis, read a paper entitled "Ambulant Management of Peptic Ulcer." The paper was discussed by Drs. Caryl Potter, St. Joseph; Frank I. Ridge, Kansas City; Dr. Gorham, closing.

Dr. A. B. Jones, Kansas City, read a paper entitled "Agranulocytic Angina; With a Recovery." The paper was discussed by Drs. F. D. Gorham, Louis; Frank I. Ridge, Kansas City, and, in closing, by Dr. Jones.

Dr. Frank J. Tainter, St. Louis, read a paper entitled "Primary Plastic Reconstruction of Lower Lip Following Extensive Removal for Carcinoma."

The 72nd Annual Meeting of the Missouri State Medical Association adjourned *sine die*.

TWENTY-FIRST ANNUAL MEETING OF MISSOURI SOCIETY OF MEDICAL SECRETARIES

The Twenty-First Annual Meeting of the Missouri Society of Medical Secretaries was held at the Kentwood Arms Hotel, Wednesday evening, May 15, 1929. Following the banquet, the president, Dr. C. H. Dixon, Moberly, delivered his Address of Welcome.

Dr. J. H. J. Upham, Columbus, Ohio, trustee of the American Medical Association, made an address.

Dr. Frank I. Ridge, Kansas City, President of the Missouri State Medical Association, and Dr. J. Milton Singleton, Kansas City, Secretary of the Jackson County Medical Society, spoke on "Suggestive Program for County Societies."

Dr. E. J. Goodwin, St. Louis, Secretary of the Missouri State Medical Association, spoke on "State Legislation."

The following officers were elected: President, Dr. J. Milton Singleton, Kansas City; vice president, Dr. C. D. Humberd, Barnard; secretary, Dr. J. T. Hornback, Nevada.

REGISTRATION AT 72ND ANNUAL MEETING

Springfield, May 13-16, 1929

W. L. Allee, Eldon	J. A. Chenoweth, Joplin
A. C. Ames, Mountain Grove	L. C. Chenoweth, Joplin
A. L. Anderson, Springfield	E. G. Claiborne, Decaturville
Finis L. Anderson, Springfield	W. L. Clapper, St. Louis
*F. O. Anderson, Maplewood	A. B. Clark, Joplin
A. Armstrong, Springfield	W. A. Clark, Jefferson City
J. LeRoy Atherton, Springfield	*W. J. Clark, Montreal
William A. Atkins, Rogersville	Logan Clendening, Kansas City
John Aull, Kansas City	Wm. H. Coffey, Kansas City
T. R. Ayars, St. Louis	*E. R. Coffey, Jefferson City
E. M. Bailey, Elkland	Paul E. Coil, Mexico
Fred W. Bailey, St. Louis	P. F. Cole, Springfield
*Asa Barnes, Columbia	*Wm. Condon, St. Louis
D. A. Barnhart, Huntsville	Albert H. Cordier, Kansas City
G. W. Barnes, Springfield	S. X. Cordonnier, Joplin
J. W. Barson, Joplin	T. W. Cotton, Van Buren
*Peter Bassoe, Chicago	R. D. Cowan, Aurora
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S. L. Baysinger, Rolla	James A. Crockett, Stanberry
William R. Beatie, Springfield	D. E. Cullers, Neosho
Howard H. Bell, St. Louis	*T. J. Curtin, St. Louis
J. L. Benage, Lebanon	J. C. B. Davis, Willow Spgs.
James M. Billings, Lebanon	John McH. Dean, St. Louis
V. P. Blair, St. Louis	L. E. Dean, Maryville
E. Claude Bohrer, West Plains	W. A. Delzell, Springfield
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H. C. Brashear, Mexico	James E. Dewey, Springfield
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W. H. Breuer, St. James	Frank D. Dickson, Kansas City
J. R. Bridges, Kahoka	Rex L. Diveley, Kansas City
F. H. Brown, Billings	C. H. Dixon, Moberly
J. R. Bruce, Marshfield	O. Jason Dixon, Kansas City
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Edward J. Burch, Carthage	B. A. Dumbauld, Webb City
C. E. Burford, St. Louis	S. L. Durham, Dearborn
W. H. Burke, Springfield	D. P. Dyer, Sedalia
U. J. Busiek, Springfield	Carl T. Eber, St. Louis
G. D. Callaway, Springfield	M. T. Edmondson, Springfield
F. B. Camp, Springfield	C. B. Elkins, Springfield
A. J. Campbell, Sedalia	Ralph V. Ellis, Springfield
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W. B. Chapman, Carthage	E. J. E. Evans, Kansas City
R. F. Cheatham, Diamond	
William C. Sheek, Springfield	

E. L. Evans, Springfield
C. H. Eyermann, St. Louis
*C. F. Falk, Springfield
R. R. Farthing, Ozark
C. E. Feller, Springfield
R. M. Feller, Salisbury
John P. Ferguson, Springfield
T. E. Ferrell, Mountain View
E. M. Fessenden, Springfield
Ralph H. Focht, Stafford
H. S. Forgrave, St. Joseph
*H. G. Frame, Republic
W. F. Francka, Hannibal
S. F. Freeman, Springfield
*H. W. Frizzell, St. Louis
C. P. Fryer, Maryville
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George T. Gafney, St. Louis
W. C. Gayler, St. Louis
O. C. Gebhart, Oregon
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*M. L. Gentry, Ava
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Bernard W. Hays, Jackson
F. T. H'Doubler, Springfield
L. L. Heid, St. Louis
F. C. Helwig, Kansas City
L. L. Henson, Fair Grove
T. B. Herbert, Lebanon
H. Lewis Hess, Kansas City
*P. M. Hickey, Ann Arbor, Mich.
*H. E. Hire, St. Louis
Roland Hill, St. Louis
Wm. M. Hindman, Burlington Junction
G. W. Hogeboom, Springfield
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R. W. Holbrook, Kansas City
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Edward R. Hornback, Joplin
J. T. Hornback, Nevada
O. C. Horst, Springfield
A. E. Horwitz, St. Louis
*L. R. Houghton, Chicago
C. D. Huffman, Springfield
C. D. Humbert, Barnard
E. L. Hume, Jefferson City
Claude J. Hunt, Kansas City
Paul F. Hunt, Kansas City
Robert Hyland, St. Louis
C. E. Hyndman, St. Louis
Marquis De Lafayette Isley, Excelsior Springs
*Douglas A. Jackson, Columbia
J. N. Jackson, Kansas City
*C. T. Jacob, St. Louis
Edwin F. James, Springfield
J. D. James, Springfield
R. M. James, Joplin
N. W. Jarvis, Festus
J. Harvey Jennett, Kansas City
W. W. Johnston, Farmington
J. F. Jolley, Mexico

A. B. Jones, Kansas City
*J. T. Judge, St. Louis
A. W. Kampschmidt, Columbia
W. Kelly, Springfield
*Frank Kerr, Columbia
H. L. Kerr, Crane
M. B. Ketron, Kansas City
Roland S. Kieffer, St. Louis
K. W. Kinard, Kansas City
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*H. E. Kleinschmidt, New York City
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A. D. Knabb, Springfield
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O. S. Krebs, St. Louis
F. C. E. Kuhlmann, Webster Groves
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W. L. Leslie, Russellville
J. W. Lindsay, Conway
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H. A. Lowe, Springfield
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Sinclair Luton, St. Louis
A. W. McAlester, Kansas City
F. M. McCallum, Kansas City
J. P. McCann, Springfield
Arthur R. McComas, Sturgeon
J. A. McComb, Lebanon
S. R. McCracken, Excelsior Springs
L. G. McCutchen, St. Louis
B. J. McGinnis, Mt. Vernon
E. J. McIntire, Carthage
Alphonse McMahon, St. Louis
J. R. McVay, Kansas City
Carey R. Macdonnell, Marshfield
Hermion S. Major, Kansas City
W. H. Mallory, Joplin
B. E. Mankopf, Washington
H. L. Mantz, Kansas City
A. H. Marshall, Charleston
*D. I. Martz, St. Louis
*F. C. Merkel, Springfield
C. B. Meyer, Springfield
T. D. Miller, Aurora
S. E. Mitchell, Malden
Harry M. Moore, St. Louis
*W. T. Moore, Everton, Ark.
Josie G. Morrison, Springfield
Daniel Morton, St. Joseph
C. V. Mosby, St. Louis
A. P. Munsch, St. Louis
F. E. Murphy, Kansas City
John W. Murray, Quincy
R. E. Myers, Joplin
James E. Neely, Trenton
C. E. Nickson, Independence
Frank G. Nifong, Columbia
*Tom Nooner, St. Louis
R. M. Norman, Ava
Emmett P. North, St. Louis
E. A. Oliver, Richland
Archer O'Reilly, St. Louis
Thomas G. Orr, Kansas City
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W. P. Patterson, Springfield
W. G. Patton, St. Louis
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A. E. Potter, Springfield
Caryl A. Potter, St. Joseph
H. C. Powers, Joplin
*Stuart Pritchard, Battle Creek, Mich.

*W. D. Rains, Kansas City
Leslie Randall, Licking
*John A. Reck, Oklahoma City, Okla.
F. Reder, St. Louis
Spence Redman, Platte City
Frank I. Ridge, Kansas City
J. A. Robertson, Springfield
G. Wilse Robinson, Kansas City
J. L. Robinson, Kansas City
Dudley Robnett, Columbia
T. H. Romeiser, Springfield
E. C. Roseberry, Springfield
C. W. Russell, Springfield
R. L. Russell, Jefferson City
Ernest Sachs, St. Louis
Val B. Satterfield, St. Louis
W. E. Sauer, St. Louis
J. S. Sayers, Springfield
R. M. Schaufler, Kansas City
Edwin J. Schisler, St. Louis
*W. L. Schneider, Rahway, N. J.
W. F. Schlicht, Niangua
J. C. Scott, Lebanon
A. P. Erich Schulz, St. Charles
W. S. Sewell, Springfield
D. L. Sexton, St. Louis
M. C. Shelton, Joplin
*M. T. Shelton, Joplin
David U. Sherman, Springfield
C. H. Shutt, St. Louis
H. A. Simrell, Caplinger Mills
J. Milton Singleton, Kansas City
F. C. Simon, St. Louis
M. B. Simpson, Kansas City
W. B. Sisson, Kahoka
Edward H. Skinner, Kansas City
A. L. Skoog, Kansas City
L. H. Slocumb, St. Louis
C. Souter Smith, Springfield
Wallis Smith, Springfield
W. A. Smith, Webster Groves
Wilbur Smith, Springfield
R. A. Sparks, West Plains
R. U. Stevens, Kansas City
J. E. Stewart, St. Louis
D. D. Stofer, Kansas City
Murray C. Stone, Springfield

R. M. Stormont, Webb City
G. V. Stryker, St. Louis
B. K. Stumberg, St. Charles
Chas. H. Suddarth, Excelsior Springs
Joseph S. Summers, Jefferson City
J. H. Sutter, University City
R. W. Swinney, Kansas City
Frank J. Tainter, St. Louis
*L. H. Talbot, Long Lane
James A. Tesson, Kansas City
Charles W. Thierry, St. Louis
Ralph L. Thompson, St. Louis
A. H. Thornburgh, West Plains
S. W. Tickle, Springfield
John H. Timberman, Chillicothe
*J. H. Tinsley, Willard
Guy Titsworth, Sedalia
E. H. Trowbridge, Kansas City
W. L. Turner, Springfield
Herbert S. Valentine, Kansas City
J. R. Vaughn, St. Louis
*A. W. Veazey, St. Louis
Geo. W. Vinyard, Jackson
Robert Vinyard, St. Louis
*D. A. Voth, Tulsa, Okla.
Earl E. Wade, Clever
James H. Wade, Ozark
J. Newton Wakeman, Springfield
George S. Walker, Clinton
C. H. Wallace, Jr., St. Joseph
A. L. Walter, Sedalia
W. B. Wasson, Nixa
*Anthony J. Watman, Jersey City, N. J.
A. J. Welch, Kansas City
A. S. Welch, Kansas City
August Werner, St. Louis
E. C. White, Kansas City
W. H. Williamson, Mokane
Will J. Wills, Springfield
*Philip P. Wilson, Boston, Mass.
B. Frank Windle, Bois D'Arc
H. J. Wise, Sparta
R. A. Woolsey, St. Louis
J. C. Young, Ozark
Total, 366
* Visitor.

WOMEN'S AUXILIARY

OFFICERS 1928-1929

President, Mrs. Willard Bartlett, St. Louis.
President-Elect, Mrs. M. P. Ravenel, Columbia.
1st Vice President, Mrs. Harry F. Parker, Warrensburg.
2nd Vice President, Mrs. T. O. Klingner, Springfield.
3rd Vice President, Mrs. M. A. Hanna, Kansas City.
4th Vice President, Mrs. James F. Owens, St. Joseph.
Corresponding Secretary, Mrs. Theodore Pre-witt Brookes, St. Louis.
Recording Secretary, Mrs. David S. Long, Harrisonville.
Treasurer, Mrs. W. H. Goodson, Liberty.
Auditor, Mrs. Vilray P. Blair, S. Louis.
Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaufler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Hinchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

BOONE COUNTY AUXILIARY

The Boone County Auxiliary has elected the following officers for 1929: President, Mrs. E. D. Baskett, Columbia; secretary, Mrs. F. C. Suggett, Columbia; treasurer, Mrs. C. M. Sneed, Columbia.

LINN COUNTY AUXILIARY

The Linn County Auxiliary has elected the following officers: President, Mrs. Ola J. Putman, Marceline; vice president, Mrs. Roy R. Haley, Brookfield; secretary-treasurer, Mrs. W. W. Ellis, Marceline.

SALINE COUNTY AUXILIARY

The Women's Auxiliary to the Saline County Medical Society held their regular meeting Wednesday, March 13, 1929, at the Goodwin Hotel, Marshall. A luncheon was enjoyed with the Medical Society, after which the Auxiliary adjourned for their business session. Mrs. F. A. Howard, Slater, presided.

The following officers were elected for the year 1929: President, Mrs. D. F. Manning, Marshall; vice president, Mrs. L. S. James, Blackburn; secretary-treasurer, Mrs. W. M. Bickford, Marshall; corresponding secretary, Mrs. R. C. Haynes, Marshall; Hygeia chairman, Mrs. H. R. Conway, Marshall.

The election of officers was followed by a discussion on how to create interest among our members. It was decided to hold the next meeting with the Medical Society to determine whether or not the Auxiliary should continue.

MRS. R. C. HAYNES,
Corresponding Secretary.

Notes

Mrs. Walter J. Hansen, St. Joseph, who was awarded the fur neck piece given to the Auxiliary member who secured the largest number of subscriptions to Hygeia from September 1, 1928, to January 10, 1929, writes as follows:

"In response to your request as to the methods we used in securing Hygeia subscriptions, may I make the following report: In May of last year we gave an afternoon card party at the Y. W. C. A. to raise money to place one subscription to Hygeia in every rural school in Buchanan County during the school term. In February of this year we gave a dinner dance and bridge party in the Crystal Room of Hotel Roubidoux, which proved very enjoyable and successful financially. Through the generosity of local business men five general prizes were donated, each admission ticket carrying with it a chance on one of these desirable prizes. Small prizes were given at each table. Another card party was planned for April 27.

"The Buchanan County Medical Society kindly donated us \$75, and with their gift and our proceeds on card parties we were able to place two subscriptions in each public and parochial school in St. Joseph.

"Committees were named to canvass the situation and get in touch with all possible prospects in the county. Each member of the Auxiliary was asked to keep Hygeia in mind at all times and place it wherever possible.

"I want to take this opportunity to thank all those who cooperated so faithfully in this work."

MRS. WALTER J. HANSEN, Chairman of Hygeia,
Buchanan County Auxiliary.

A letter of condolence has been sent from the State Auxiliary to Mrs. H. S. Maxwell, Hopkins, on the death of Dr. Maxwell. It was through the gracious generosity and hospitality of Dr. and Mrs. Maxwell that the occasion for organizing the Auxiliary in Nodaway County was presented. At that time Dr. and Mrs. Maxwell entertained all the doctors and their wives, some sixty in number, and Mrs. W. T. Martin, Albany, presented the Auxiliary idea to the women.

The officers of county auxiliaries are urged to send contributions for the Medical Student Scholarship Fund just as promptly as possible to the

state treasurer, Mrs. R. C. Haynes, Marshall. Up to June 11, 1929, Johnson County Auxiliary, with only eight members, has sent in \$50.00 and Boone County Auxiliary has remitted \$25.00. It is the earnest desire of the president, Mrs. M. P. Ravenel, Columbia, that \$250, half of the annual scholarship, will soon be available and that payment will be made before September 1 to that graduate of the University of Missouri Medical School, whom the committee selects as most worthy.

ST. LOUIS AUXILIARY

At the annual business meeting of the Women's Auxiliary to the St. Louis Medical Society on June 5, 1929, the following officers were elected for the coming year: president, Mrs. Carroll Smith; first vice president, Mrs. Frank Hinchey; second vice president, Mrs. Philip Schuck; third vice president, Mrs. Clarence Martin; fourth vice president, Mrs. McKim Marriott; recording secretary, Mrs. A. E. Meisenbach; corresponding secretary, Mrs. W. A. Hall; treasurer, Mrs. William Weiss; directors, Mrs. Raymond M. Spivy, Mrs. Francis Reder, Mrs. Sam T. Bassett, Mrs. Hudson Talbott, Mrs. French K. Hansel, Mrs. H. McClure Young.

BOOK REVIEWS

TECHNIQUE OF CONTRACEPTION. The Principles and Practice of Anti-Conceptional Methods. By James F. Cooper, M.D., Medical Director of the Clinical Research Department of the American Birth Control League, etc. Day-Nichols, 15 East 40th Street, New York City.

Here, at last, is "Technique of Contraception," based on wide clinical experimentation, with discussion of all methods, their relative values, and their technique. It includes illustrations, tables, charts, and sex-history covering five years of clinic experience and "follow-up" in which 8,000 cases were admitted. Emphasis is given to "A New Method for America," proved by test to be a close approach to 100 per cent successful.

The author, James F. Cooper, M.D., has had unusual opportunities to equip himself for writing his book. As Medical Director of the Clinical Research Department of the American Birth Control League, as medical representative of the League abroad, and as lecturer in every State before County or State Medical Societies, Academies of Medicine, Medical Schools, Hospital Staffs, etc., his reputation in his speciality is international. This book is available to physicians only.

THE SURGICAL TREATMENT OF MALIGNANT DISEASE. By Sir Holburt J. Waring, M.S., M.B., B.Sc. (Lond.), F.R.C.S., Surgeon to and Joint-Lecturer in Surgery at St. Bartholomew's Hospital and Medical College, etc. Illustrated with 19 colour plates and 277 figures. Oxford University Press. American Branch, 35 West 32nd St., New York City. Price \$15.00.

Dr. Waring's book covers in a general way the surgical treatment of malignant diseases at different parts of the body. It is interesting to read and nicely illustrated. It seems to the reviewer, however, that some things are lacking, particularly in regard to the detailed descriptions of the various operative procedures. Some of the drawings are inaccurate from a pathological point of view. Nevertheless, the book covers a particular and deserves a place in the medical library.

A. S. W.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

AUGUST, 1929

NUMBER 8

E. J. GOODWIN, M.D., Editor
1023 Missouri Building, St. Louis, Mo.

PUBLICATION { T. W. COTTON, M.D., Chairman
COMMITTEE { CLYDE O. DONALDSON, M.D.
M. A. BLISS, M.D.

ORIGINAL ARTICLES

MEDICINE AN ART*

PRESIDENT'S ADDRESS

FRANK I. RIDGE, M.D.

KANSAS CITY, MO.

It is with regret that I sing my "swan song" tonight. The things I could say to the group as the medical profession of the state, I have already said. It is probably my function now to tell you lay people, who may not have a wide acquaintance with doctors and do not know how we feel, some observations I have made during my tenure of office that may or may not have a value in the interpretation of what the activities of organized medicine mean and should mean.

Organized medicine is and always has been essential to the betterment, education and uplift of its own membership. Primarily, our function is to keep all of our members and all practitioners of medicine in the state as well informed as possible upon the problems that confront the practitioners of medicine, the directors of hygiene, and the directors of public health.

Our second function is that of cooperation. Cooperation between medical men is essential. It must be if we are to get anywhere toward helping the public whom we serve. But medicine, as I said a week ago speaking to another audience, is not a profession; it is an art. You may learn the technical side of medicine, the mechanics of diagnosis, the mechanics of laboratory work, but the real practice of medicine is an art, and art emanates from the soul. Unless the medical man is motivated from the innermost workings of his soul his results will not be for the betterment of the people with whom he comes in contact. It is due to these people who look upon medicine mechanically and not as an art, who look upon it as a trade or a profession, that we have as much trouble

as we do, because they have not come into cooperation with the soul of organized medicine.

The direction of health activities within the commonwealth has long been a part of the medical profession's duty. Whether or not the medical profession as an organization has been derelict in this duty remains to be seen. It would seem, however, that in the past we have not made ourselves as potent a factor as we should in the direction of the activities of health problems, especially in our willingness to assume the responsibility by advising those in authority upon the selection of officers to carry out the laws as provided by the statutes of the state. They say that we are putting politics into medicine. We are not trying to put politics into medicine but we are trying to put medicine into politics. The lay mind has no conception of what the medical profession is thinking about. Their information comes mostly from the lay press, and the lay press will, for a sensational headline, garble any statement that is made in a medical society, even when they are given verbatim dictation as to what the statements were. I will give you an example that occurred the other day. In my message to the House of Delegates I recommended that the medical institutions instead of having a requirement of one year hospital experience have two years, and that the medical student spend his vacation of three months between his second and third year, and three months between his third and fourth year, as an apprentice to a general practitioner, preferably in a rural district, and that that six months' experience count as one year of intern service. But in the paper what did I read? That Dr. Ridge recommended that instead of having one year of hospital intern service the medical students be farmed out for these two periods and that that count for one year of hospital experience, which was not my intention. One year of hospital experience is necessary, but I do not think the rural training and two years of hospital service are necessary.

The problem of public health and hygiene is

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

a growing one. It has grown so rapidly that the hygienists have come to the conclusion that it is their bounden duty to take care of the sick as well as regulating the hygiene and health of the community. In other words, the tendency has been toward state medicine. Such medicine may be all right. It has been tried in Germany very unsatisfactorily. It has been tried in England very unsatisfactorily. What does it mean? It means that the choice of your doctor eventually will not rest with you; that it is a matter of army doctors (no disrespect to the army doctors), of public health doctors (no disrespect to the public health doctors). But your physician is upon a fixed salary, he is not responsible for the impression he makes upon the people, he is not morally responsible to the people for his actions; eventually he becomes autocratic and medicine has lost the human touch when it is put upon a state basis. The regulation of hygiene and sanitation and those things necessarily belong to trained men, men who are fond of that line of work, and who are employed by the state.

The one lasting impression I wish to make on the lay mind, to convey to the lay public, is that any member of the medical profession who seeks notoriety by lay publicity, who seeks to get his name in the paper, who seeks to get his picture in the paper, especially when it comes to medical subjects, has not in reality the soul of an artist. He misleads the public—he makes them think he is preeminent in his line. The reporters are clamoring at the door of the doctor to give them something to make a sensation. I had a reporter threaten to camp on my trail for ten years in order to get something on me because I refused to give him information about a sick patient. But if you live within yourself and do not seek publicity, you can go to bed at night with a clear conscience and with the feeling that the medical profession means something beyond the mere commercial attitude of barter and trade.

1002 Medical Arts Building.

THE PSYCHONEUROSES: WHAT THE GENERAL PRACTITIONER SHOULD KNOW AND DO*

PETER BASSOE, M.D.

CHICAGO

MEANING OF NEUROSES, PSYCHOSES, AND
PSYCHONEUROSES

The ailments which I am about to discuss are the commonest, but also the most vague,

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

the most misunderstood and, in spite of their frequency, the ones which receive the least amount of contemplation by medical students and practitioners. This attitude is partly due to a feeling that nervous and mental diseases are so complicated that only the specialist can hope to get a useful grasp of the subject. For this attitude poor teaching in medical schools is largely to blame, as well as a bewildering and often meaningless nomenclature. The discouragement concerning organic nervous diseases is of a simple kind, based on the complicated anatomic and physiologic conditions and the long list of possible affections. However, anybody can see the way to mastery of the subject matter if he is willing to take the necessary time. It is different with the so-called functional disorders, which cannot be visualized as something plus or minus in connection with a particular structure. The general term "neurosis" stands for something affecting the function of the physical nervous structures; "psychosis," for something wrong with mental function; but why the compound, "psychoneurosis?" Those who introduced the term found it convenient for conditions of combined disturbance of mental and bodily function and for conditions where they were uncertain as to which was at fault. Fortunately, with increasing knowledge, it has become possible to be more precise. Paralysis agitans, chorea and tetany, formerly classed as neuroses, have been proven to have an organic basis and have ceased to be neuroses. Epilepsy and migraine remain neuroses though they too may be transferred to the organic group in time. Hysteria, "psychasthenia," "anxiety neurosis," "compulsion neurosis," are admittedly purely psychic in origin and should be classed under mental diseases, most aptly as "minor psychoses." You may ask whether I really mean that persons with hysteria and morbid fear have mental disease, and I shall reply that I most certainly do, but will explain myself more fully later, after having disposed of another psychoneurosis, the best entrenched of them all,—neurasthenia. This condition, as troublesome to the classifier of nervous and mental disorders as to its supposed victims, is claimed to have first been described and named by George M. Beard¹ in 1869, but in a paper read before the State Medical Society of Wisconsin² I pointed out that the word neurasthenia as meaning nervous exhaustion is found in a German dictionary of 1821 and in Dunglison's dictionary of 1833, and that Van Deusen,³ of Kalamazoo, Mich., had described the so-called disease shortly before Beard. Van Deusen mentioned irritability, hyperesthesia, headache, sleeplessness, paresthesias and a tendency to mucous

diarrhea as the principal physical symptoms, and *distrust* as the principal mental one. Permit me to repeat some of the comments I made in my Wisconsin paper: "The new ideas formulated by Van Deusen and Beard were most fruitful for many years as they led physicians to understand that many nervous symptom-complexes could be explained by inquiring into the habits of work and play, the family situations and mental conflicts of the patients. But when the ideas had become codified and standardized in the textbooks and physicians thought they had done their duty when they applied the label "neurasthenia" because it fitted the symptoms and then prescribed some of the drugs,—electrotherapy or hydrotherapy recommended in the books,—without going into a painstaking study of the dynamic factors in the individual case, then progress became retarded. In other words, when neurasthenia began to be considered a disease entity it deteriorated into a convenient wastebasket and encouraged superficiality and laziness. Into this basket are carelessly thrown cases of unrecognized organic diseases of all kinds, early tuberculosis, pernicious anemia, even Addison's disease, early paresis, mild dementia praecox, melancholia, and manic-depressive insanity, just because the features of irritability, exhaustibility and undue fatigue may superficially fit the term neurasthenia. Thousands of cases wrongly remain in the basket and are rescued too late or never."

ALL PSYCHONEUROSES ARE MENTAL, BUT NOT
"INSANITY"

It is clear to any experienced physician that even in so-called neurasthenia the main feature is *fear*; that cases of pure exhaustion states with retained equanimity and poise are few, certainly less than ten per cent, and for this small group we may use the term *fatigue neurosis*. The rest belong in the mental group, with the hysterics, phobia and compulsion victims. You will object that it will not do to tell these sensitive people that their trouble is mental lest they will either become angry or frightened, and think you mean they are headed for the insane asylum. This is one of the crucial points in our dealings with psychoneurotics, and I am very serious when I say that we must ourselves learn to understand, and then be able to get it across to our nervous patients, that mental disorders or diseases are of all kinds and all degrees; that few of them lead to so-called insanity. Imagine what would be the state of mind of patients with some mild physical disorder if the expression physical or bodily disease automatically was taken to imply an ultimate permanent bedridden state! The actual percentage of commitments as insane of

persons with mental trouble in some form is no greater than a prolonged bedridden state and death in cases of physical disease. Our profession is largely to blame for maintaining the unfortunate camouflage of masquerading so-called nerves as something apart from minds. I am glad to see that many leaders in medical thought are aware of the need of clarifying our own thoughts on mental health and mental disease. The present Regius Professor of Medicine at Oxford University, Sir E. Farquhar Buzzard,⁴ said that "mental hygiene as a branch of medical science has been a miserable, neglected, and stunted plant," and then called attention to "some of the weeds that have choked the plant we would see flourish." As the most obnoxious one, "one that was sown in ignorance and that has been nourished on fear," he considers "the fallacious belief, deeply implanted in the public mind and waiting a long delayed exhumation by our profession, that so-called functional nervous disorders or 'nerves' are not mental disorders." He says further that "if we ourselves eradicate this weed, we shall, in the first place, be able to speak quite as frankly about mental disorders as about gastric disorders, and to discuss psychotherapy as freely as we do diet. If we recognize, and cause to be recognized, that there are all degrees and kinds of mental disorders, we shall gradually, but surely, break down the barrier that at present separates 'nerves' from insanity, and that preserves for the latter the position of a mysterious and malign ogre lurking in the background and ready to pounce upon its victims from an unseen world. No harm is or ever can be done by dispelling ignorance or clearing up mystery." It is high time that we as a profession learn to take a common sense and dignified attitude to the medicolegal problem of so-called insanity. It is obvious to all that this conception now and again leads us to appear ridiculous and worse. To my mind the whole trouble is that we have allowed ourselves to be led out on too thin ice and to assume tasks of settling problems that really are not medical at all. I am very glad to find that the Medicolegal Committee of the American Psychiatric Association⁵ recommends that such concepts as "responsibility" and "insanity" should be eliminated from the questions put to medical experts. "Insanity" is primarily a social and legal status, and it is confusing to speak of "medical" and "legal" insanity. I agree with Karl Menninger's⁶ statement in his review of Singer and Krohn's book, "Insanity and Law," that we should define an insane person as one who has been so declared by law, in that way placing insanity in the same position as marriage as a social status created by a legal pronouncement. This attitude does

not mean that we are to shirk any duties in aiding the courts by giving to them all facts ascertained by medical examination which will aid in disposing of cases to the best interest of the individual and the community. What we must get away from is that the mere existence of mental trouble of some sort in itself raises the issue of "insanity." We have been fairly successful in teaching people to take care of their common colds in a sensible way, avoiding at the same time careless neglect and undue apprehension. We must do the same with the equally common minor mental ills.

ATTITUDE OF PRACTICING PHYSICIAN TOWARD PSYCHONEUROSES

Having now set ourselves right on the points that nervousness, "nerves," and psychoneuroses of all kinds are mental disorders, and that it is up to the courts and not to us to pronounce people "insane," we are ready to discuss three questions: 1. What is most important for the general practitioner to know about these minor mental ills (minor psychoses)? 2. What can he do for the individual patient? 3. What can he do in his community to prevent the development of such ills; in other words, how can he serve the cause of mental hygiene? Psychoneurotic "symptoms," while due to psychic causes may themselves be either psychic or somatic. Under normal conditions fear will cause tachycardia, tremor, and perspiration, even relaxation of the sphincters; a disgusting sight may cause nausea and vomiting; sudden grief, secretion of tears; sudden joy gives rise to various kinds of hypermotility, particularly laughing, but also clapping and waving of hands and even a veritable saltatory spasm. Under abnormal conditions, consisting either of hypersensitiveness in the individual or unusual provocation from without or from within, the responses may be most bewildering both in variety and intensity. The psychoneurotic symptoms are reactions, instinctive and protective, to some disturbing influence, physical or mental, from within or from without. Of course, all symptoms of disease are reactions to some morbid agency, but in the field of physical diseases the responses are reasonably constant in type, and may be predicted fairly accurately if the morbid agency is known, as illustrated by the difference in appearance between a typhoid fever and a pneumonia patient. Now comes a very important point. The differences between the various psychoneuroses and functional psychoses depend more on the constitution and mental make-up of the victims than on the provoking agencies. The psychoneuroses are not "diseases," but reaction types. As people differ much more in mental than in physical characteristics and as the exact setting is never

the same, so each psychoneurotic is in a way a law to himself. The physician need not trouble himself very much about deciding whether his patient's condition should be labeled hysteria, psychasthenia, neurasthenia, or anxiety neurosis, but he must do something much more important, namely, find out what kind of personality he is dealing with, and what the disturbing factors are in that particular case. He has a tremendous advantage if he already knows something about the patient, his environment, his interests and his worries. However, he must not take anything for granted, but make a thorough and objective investigation. He must bear in mind that a person with morbid fears or hysterical paralysis may have organic disease as well. In fact, behind so-called neurasthenic states with vague but persistent and discomforting fears, there may lurk incipient tuberculosis or pernicious anemia. Our patients with known organic disease sometimes suffer more from superadded fears and functional nervous trouble than from the original disease; for instance, in cases of compensated heart lesions, high blood-pressure and mild tabes. Some of my worst and most disconsolate patients of this kind have been physicians. That the medical profession in this country is awake to these problems was demonstrated at the meeting of the American Medical Association in 1927 when the Section on Medicine had a symposium on "Psychic and Emotional Factors in Internal Diseases." The chairman, R. T. Woodyatt,⁷ related instances of sudden aggravation in cases of bodily disease brought on by emotions, and urged his hearers to bear in mind that all people, normal or sick, have emotions and emotional conflicts, and all are affected physically by them. Ramsey Hunt discussed the diversion of psychic energy into somatic channels with production of visceral symptoms simulating very closely the clinical picture of organic disease. He wisely stressed the importance of thorough study of the organic condition, and said that a diagnosis of psychogenic disorder should only be made by exclusion. Excellent papers on psychic and emotional factors in heart disease, gastro-intestinal diseases and chronic nose and throat infections, were read in the same symposium. Before the Section on Nervous and Mental Diseases in the same year C. C. Wholey⁸ read a paper on "Mental Symptoms in Relation to General Medicine," and Groves B. Smith⁹ on "Psychoneuroses: Their Problems in the General Hospital." Smith found that at least one-fourth of all patients admitted to the department of medicine of the Henry Ford Hospital needed psychiatry, and, conversely, of 100 consecutive cases of psychoneurosis of the anxiety type, only four per cent were free from associated

organic pathology. He pointed out how "emotional conflicts, infantile responses and behavior, and unsatisfied sex strivings are seen masquerading as hyperthyroidism, as cardiac disease, and last, but not last, as pelvic disease." Francis W. Peabody¹⁰ states that many physicians whom he has questioned agree in saying that, excluding cases of acute infection, approximately half of their patients complained of symptoms for which an adequate organic cause could not be discovered. Yet these patients are most unhappy and need and deserve help. Instead of telling them that there is nothing the matter with them the physician should inquire into their emotional life, and his efforts will usually be rewarded. All of this goes to show that there is an increasing realization of the importance of considering the whole personality of the patient and not only his "disease," and that mental and physical factors and symptoms are so interwoven that no physician or surgeon is ever justified in neglecting the psychic side. He may say that on account of pressure of business he always turns such problems over to the neuropsychiatrist, but that will not save him from serious mistakes as he will often fail to realize that there is a mental problem at all. The only safe attitude is to accept and act on the perfectly obvious fact that all patients have both bodies and minds, and the physician's duty is to the whole person. One thought naturally comes forward now. If consideration of the whole personality of the patient and of emotional factors is so important more attention must be given to normal and abnormal psychology in the medical schools. But it will not suffice for us to clamor for more courses in more subjects. The trend in medical education now is rather to subtract from than to add to the number of courses, and it is not easy to adopt courses in psychology to the needs of the practicing physician. It is more important that the teachers in all clinical subjects give the necessary attention to the mental factors. Fortunately, most hospitals and outpatient clinics connected with medical schools now have social service departments. In their work among outpatients and as clinical clerks in the hospital, students learn by experience the importance of reports on the home life and personal problems of patients submitted by social workers. This impresses itself all the more on the student when he observes that his teachers, the attending physicians in the dispensaries and hospitals, attach great importance to these data. This kind of practical psychology, based on common sense and devoid of a special terminology, will remain with the student and serve him well when he has to do his work, both medical and social, independently.

METHOD OF APPROACH IN INDIVIDUAL CASES

First of all, the psychoneurotic patient must be given time to tell his own story in his own way. Then the physician will be able to turn about and insist on the patient answering *his* questions, even if they may appear irrelevant to the patient. The physician must take pains to explain that unless he gets all the facts he may make a wrong diagnosis and institute wrong treatment. The sympathetic but insistent physician who makes the patient feel he is bound to get to the bottom of the trouble will repeatedly make these two observations: first, that the patient's story of his complaints is often very incomplete, those facts of which the patient in some way is ashamed often being concealed; second, that when properly urged and led on the patient will often tell as much in one or two interviews as psychanalysts claim can only be elicited by their methods in the course of weeks and months. It is common to have them say that they never told these things to anybody before. As the general practitioner's time is limited it is important for him to waste as little as possible and to know along what lines results are most likely to be obtained: (1) Hereditary influences should be inquired into if not already known to the physician. (2) The environmental conditions in childhood and the patient's reaction to them are even more important in most psychoneurotic cases. I venture these two statements, that few psychoneurotic adults have had a happy, wholesome, and normal childhood, and that few happy and wholesome children become psychoneurotic later in life. I am aware that the claim can be made that good heredity counts more than wholesome environment but I have a strong feeling that environment counts for more in the conditions we are discussing. Find out about the state of nutrition in infancy and early childhood, for many persistent states of fatigue and sensitiveness are related to early malnutrition. Find out if the child slept well, if it were given to tantrums and wilfulness and how such manifestations were handled, also if the child played well with others, could learn to give and take, and be considerate. While so-called spoiling of children undoubtedly predisposes to faulty reactions and serious personality troubles later, I have been impressed also with the frequency of a history of unreasonably severe and brutal punishment, and of the ill-effect on the child of quarrels among the parents. (3) The sex life and attitude of the patient is of the utmost importance regardless of his subjective and objective symptoms. Even if we reject the Freudian doctrines we must admit the truth of the dominant position of sexual factors in the psychoneuroses. If we

make a habit of inquiring openly and directly about these matters we often find that these sex "complexes" are closer to consciousness, less deeply buried than the Freudians make us believe. (4) Find out if the patient has any definite feeling of inferiority and, if so, to what he blames it. Often this is only part of a sex notion but according to Alfred Adler and his followers it may be due to pessimistic notions regarding mental endowment or inheritance or to erroneous judgment in various ways concerning self and environment. According to this view a neurosis is the result of an effort on the part of a timid, egocentric person to protect himself and to avoid responsibility; it is therefore acquired, not congenital; optional, not compulsory. If such an "inferiority complex" can be brought out it will often give both physician and patient a useful starting point for the upbuilding of the patient's courage and calming of his fears. (5) A routine physical examination is obviously always necessary and must be particularly thorough when the fears of the patient relate to his body. Again, let me remind you, that so-called functional symptoms may mean the beginning of many an organic disease. I have myself been guilty of diagnosis of hysteria in the early stages of brain tumor and multiple sclerosis.

METHODS OF TREATMENT

Having excluded physical disease as the important factor the problem is one of restoring the patient to normal mental poise by allaying fears, restoring self-respect, undoing the effects of harmful suggestions. No two cases are alike, and we must adapt our methods to the particular person and problem at hand. In many cases we must play the part of personal friend and confidant, even spiritual adviser and father confessor. The failure on the part of physicians to assume this task has driven thousands of people to Christian Science and other cults. However, although we are essentially practicing psychotherapy in these cases we can often make excellent use of our usual remedies, drugs, diet and physiotherapy of all kinds. The judicious use of hypnotics and bromids to provide much needed sleep and to lessen sensitiveness is often essential. A stubborn hysterical paralysis, anesthesia or aphonia may yield promptly to the faradic current used with proper persuasion and ceremonial. In many cases there are secondary physical conditions needing attention, like the malnutrition following hysterical anorexia and vomiting, and the intestinal disorders attendant upon too much attention to abdominal sensations. I may say that just now there is a tendency to over-treat and to designate as "colitis" bowel conditions that are just as psychic in origin as the

spermatorrhea of masturbators, the palpitations of anxiety neurosis and the asthenopia of fatigue states.

PROPHYLAXIS OF PSYCHONEUROSES AND PSYCHOSES

Much has been said about increase in mental diseases in our time, but that is scarcely true. On the other hand, it is true that people have become more impatient and intolerant of discomforts and unhappiness of all kinds, and have less respect for tradition and authority. The modern child and adolescent would react by all kinds of neurotic symptoms to the kind of school, church, and home discipline in vogue during New England colonial times. While the greater tendency to rebellion against authority is in itself under some conditions a source of neurosis it has also done away with the necessity of repression in other situations and rendered it unnecessary to seek refuge in a neurosis. Major hysterical performances as means to reform badly behaving husbands are not so likely to be resorted to by a wife who knows how easily divorce may be secured. With increasing popular knowledge and growing religious tolerance superstition of all kinds and fear of eternal damnation are much less productive of anxiety states. In every past generation middle-aged and elderly physicians have sounded the alarm of increase in nervous and mental trouble from the declining morals, fast pace of living and the many new-fangled nerve-racking contraptions. For instance, writing from Keokuk, Iowa, in 1855, John R. Allen¹¹ said: "The various forms of neuroses are becoming wonderfully prevalent, and I think especially so in our Western cities." He blames this condition in women largely to "indulgence in indolence and inactivity," and to "the masculine effrontery of bloomerism and women's right fanaticism," making up "a system which reduces to mere nervometers the children of the opulent and indolent." Writing in 1869 on conditions leading to neurasthenia Van Deusen,¹² of Kalamazoo, mentioned "the hot-house educational systems of the present day, and the rash, restless, speculative character of many of our business enterprises." However, as a more frequent predisposing situation he mentions one which has been greatly mitigated by our much abused modern industrialism. He said: "The early married life of the wives of some of our smaller farmers seems especially calculated to predispose to this condition (neurasthenia). Transferred to an isolated farmhouse, very frequently from a home in which she had enjoyed a requisite measure of social and intellectual recreation, she is subjected to a daily routine of very monotonous household labor.

Her new *home*, if it deserve the name, is, by a strict utilitarianism, deprived of everything which can suggest a pleasant thought; not a flower blooms in the garden; books she has, perhaps, but no time to read them. Remote from neighbors, as in sparsely settled districts, for weeks together, she sees only her husband and the generally uneducated man who shares his toil."

The fact is that the normal human mind adjusts itself remarkably well to all kinds of complicated situations but the mind with a flaw in its early making often cracks when meeting difficulties of a minor sort. With some evil factors less potent than formerly and others more so it is fair to say that there has at least been no great *absolute* increase in major and minor mental troubles in the last hundred years. On the other hand, while the incidence of infections and many other somatic diseases has been greatly reduced and the span of human life greatly lengthened we cannot point to any corresponding reduction in mental ills. Thinking people now demand greater effort in this direction and if we of the medical profession do not get busy, others will, to the great loss of our prestige and self-respect. Permit me to quote from the only other paper I have read in the State of Missouri, namely, one given at the meeting of the American Medical Association in St. Louis in 1922:¹³ "All around there is a demand for information and guidance, especially along lines of psychology and psychiatry. Judges and juries more than ever before turn to us for explanations of abnormal human behavior, and there is a great willingness on their part to consider the medical and psychologic points of view. In many juvenile and criminal courts the opinions of the psychiatric adviser, in determining the fate of the accused, are of as great importance as, or of greater importance, than the paragraphs of law concerned. Among educators we find the same demand. In the grade schools, high schools, and colleges alike, teachers are asking for aid in dealing with problems in connection with behavior or refractoriness to certain studies or activities on the part of pupils.

"Shall this aid be given by the psychologist without medical training or by the medical man possessing knowledge of normal and abnormal psychology? Experience has shown again and again the importance of the medical point of view in connection with these problems, and it is our duty to meet these demands for aid and not pass them by default to the nonmedical psychologists. Let me warn you that the medical profession has no time to lose before facing these issues. One has merely to observe the tables of contents of popular magazines and the subjects of lectures before clubs and public

and private gatherings of all kinds to appreciate the extent of the invasion of the field of psychopathology by all kinds of lay psychoanalysts and psychologists, some of them well trained and well meaning, others dangerously contaminated by occultism, obscurantism, commercialism, or by all of these."

How can individual physicians aid in the promotion of mental health? In the important matter of heredity we should at least be informed and ready with advice when called upon, as we sometimes are before marriage is contracted and still preventable. We should also consider it a duty to be prepared to answer questions, often most trying, on the matter of birth control. Considering the medical importance of eugenics it is a little disconcerting to note the small number of medical men on the membership roll of the American Eugenics Society. While we may not agree as to how far our duties extend in matters of eugenics we agree that we wish every child born to have the best possible chance in life. We should be as ready and as well prepared to give aid in the mental as in the physical health problems of childhood. Mistakes in the care of the mind of the child are more serious as mental traits become firmly fixed at an early age. The public are learning this and naturally first look to us for help. It will be bad for us if we give the people stones instead of bread by failing to study mental child problems as seriously as we do those of diet and vaccines. In a recent address entitled "The New Childhood," Ray Lyman Wilbur¹⁴ said: "Society protects its future in the child by throwing around it the arm of the scientific physician. The physician has always been kind, sympathetic and helpful, but in the past he has been ignorant, blundering and ineffective. Until science came to his aid he fought blindfolded countless unknown enemies. With science as his aid, he faces enemies of known qualities." We are here on a difficult border territory of the practice of medicine. We should be thankful for whatever aid we can get from teachers and psychologists and be glad to cooperate with them. All agree that the defective child has a medical aspect but that is not always recognized in the case of behavior disorders. Teachers often fail to think there is anything wrong with the dreamy, self-conscious, but quiet and inoffensive child, one that avoids rough games and keeps by itself, the kind the psychiatrist knows to furnish recruits for the dementia praecox ranks, or at least to be apt to become psychopathic later. It is all important to discover them early, for by keeping them in contact with reality many can be saved from psychoses. Cooperation between parents, teachers and physicians is, of course, essential. Physicians should be available for

this purpose, and in large schools both physicians and psychiatric social workers should be appointed, the latter to do the time-consuming work of getting together all data from teachers and parents. We shall not get this all-important prophylactic work well under way until we have mental hygiene and abnormal psychology more satisfactorily and generally taught both in medical schools and normal schools. For present needs of immediate information the many excellent pamphlets issued by the National Committee for Mental Hygiene¹⁵ serve admirably. The occasional ill effects of the rigid school curriculum which assumes all children in the same grade to be alike are emphasized by Esther Richards¹⁶ and by Ralph Truitt.¹⁷ The latter, in discussing the whole problem of the prevention of mental suffering, says: "If we are going to help healthy individuals to better mental adjustments and also prevent dependency, insanity, and general social inadequacy, undoubtedly the school should be the focus for our attack. The home and school occupy key positions in relation to the mental hygiene of childhood. The school, however, surpasses the home in its potential understanding, its objectivity, and its possibilities of concentrated effort." Prompt and wise attention to early peculiarities of behavior in children is also the best means to reduce adolescent and adult criminality. If a state would spend on child study, child guidance clinics and social service work, including proper placing of children with uncorrectible home conditions, a thousand dollars for every million spent for police, criminal court systems and prisons, crime would lessen and much money would be saved. Facts and figures are already available showing that neglected delinquent children are the budding adult criminals. William Healy's¹⁸ comparison of the careers of 2000 such children in Boston, where they are quite well looked after, with 2000 in Chicago, where they are not, is illuminating on this point. Of a group of 127 mentally abnormal boys recognizable as needing special care,—who consequently should have been segregated,—93 became costly trouble makers; at least six have committed murder and 64 various other crimes, many very desperate. Among 400, considered mentally normal at the time, who needed at least supervision, thirteen became murderers, seven of them still considered mentally normal. From Norway recent and quite extensive data compiled by S. Dahlstrom¹⁹ led him to answer Yes to the question: "Is the young criminal a continuation of the neglected child?" The need of medical men to cooperate with the courts is rapidly becoming recognized by judges and prosecutors. Thus, Judge C. W. Hoffman,²⁰ of the Cincin-

nati Juvenile Court, says: "The physician has a place in every court in which antisocial behavior is the issue. His place should be that of director or member of a medical and psychiatric clinic, scientifically and impartially conducted with the sole purpose of aiding the judges in disposing of the human issues before them."

The general physician should have the opportunity of closer cooperation with the state institutions for the insane, and in some states these institutions have recently added greatly to their activity and usefulness in the community. I refer particularly to the outpatient work of the Boston Psychopathic Hospital and the traveling "mobile clinics" of the Colorado Psychopathic Hospital. The educational possibilities of such institutions are set forth as follows by Franklin G. Ebaugh,²¹ director of the Colorado institution: "A. Intramural possibilities: (1) Adequate teaching of medical students emphasizing a diminution in didactic work and increasing actual ward contacts with patients. (2) Educational possibilities through regular group conferences with relatives. This should be a vital activity of any psychopathic hospital. (3) Education through the medium of patients discharged from the hospital. Each patient should be given written advice analogous to that given in other medical fields. (4) An active consultation service will help break down the barrier between psychiatry and the other fields of medicine. In this connection it is important to have joint clinics with representatives from other fields. B. Extramural educational possibilities: (1) Further contacts with the courts and the legal profession should be made. In this connection a brief course in psychiatry in the law school has been given. (2) The traveling clinic has been found to be of great educational value, especially since it furthers contacts with schools, social and health organizations in all districts. It should pave the way for the establishment of permanent base clinics and it is hoped that eventually a permanent traveling team will be created."

THE MENTAL HYGIENE MOVEMENT

Everything said so far in this paper leads to the conclusion that of all people physicians should take the lead in furthering mental health as well as bodily health. Neither the idea nor the term "mental hygiene" is new to American physicians. In 1843 there was published in New York a book by William Sweetser: "Mental Hygiene, or an Examination of the Intellect and Passions Designed to Illustrate Their Influence on Health and the Duration of Life." One by Wm. M. Connell: "How to Enjoy Life, or, Physical and Mental Hygiene," appeared in Philadelphia in 1860. Isaac Ray

wrote a book, "Mental Hygiene," of 338 pages which was published in Boston in 1863. An exceedingly able and snappy paper, dealing largely with the evils of too standardized education, by John Favill, of Madison, the first secretary of the State Board of Health of Wisconsin, was unfortunately published only in the annual report of that board for 1876. The modern organization of the mental hygiene movement is only about twenty years old. We hope that the International Congress on Mental Hygiene to be held in Washington next year will have a large attendance of American physicians. That the leaders of the movement are eager to enlist in their ranks the general medical profession is well stated in an address before a county medical society by George K. Pratt,²² Medical Director of the Massachusetts Society for Mental Hygiene, with whose words I close: "The hope of psychiatry lies in a keener knowledge of, and a broader sympathy for, mental troubles on the part of the general physician. Without his enlightened interest and active aid little if anything can be done. In every community the general practitioner is the public health leader to whom the lay citizens look for advice and help. If this physician be backward or indifferent to these issues, then also the citizen grows apathetic and disinterested. If the physician is unfamiliar with the symptoms of early departures from mental health and by his attitude gives the impression that the patient's complaints are of little consequence, or that because of their social rather than their physical significance, they fail to come within the province of the medical man, how then are we to blame the layman for not being sensitive to the importance of this great task in preventive medicine?"

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PREVENTIVE MEDICINE, PAST, PRESENT AND FUTURE*

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Mr. President: Before beginning my remarks I want to extend to you and your fellow members my hearty congratulations on this very successful meeting. Perhaps I should speak as the optimist who fell out of a ten story building. As he passed each floor he said, "All right so far." I have been in organization work and speak from the point of view of one who has just completed twenty-five years in active service in one position or another in the state organization. To get rid of me they elected me president, but after that for fifteen years I was chairman of the public health committee. I have been among you, sir, for two days and have watched with a great deal of interest your proceedings. I have studied your program, with its width and breadth and general interest. I am very glad to see that Missouri has such a live, wide-awake association, that your members are filled with the high ideals of the medical profession, and that they are rendering such good service to the citizens of your commonwealth. I congratulate you.

Preventive medicine in its present conception is entirely a development of modern times, approximately of the last fifty years. Before that time the universal aim of the medical profession was toward what we now call the curative branch of medicine. Physicians considered health and disease in terms of the individual rather than of the mass or of the community. They endeavored, practically solely, to combat disease after it had appeared rather than to prevent its appearance; the strategic weakness of such an attitude is epitomized in the well known axiom that the best defense is offense. Such an attitude was practically forced upon the medical profession of those days, however, simply because

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

there was no actual knowledge of the causes and methods of transmission of most diseases. In the light of our present knowledge it is appalling to read of the various plagues which devastated whole communities in preceding centuries. Plagues, entirely preventable and unnecessary, swept communities like a conflagration and like a conflagration finally burned themselves out because of the lack of knowledge of ways and means to check them.

It is true that crude efforts were made, the chief of which still remains with us,—as a “horrible example” in the opinion of the writer,—of a most unscientific, ineffectual, expensive and, I feel, an almost useless procedure except in comparatively few instances. I refer to the institution of quarantining. This is a product of the dark ages. The word is derived from the Italian “quaranto,” which indicated the number of days individuals were detained under observation should they, in traveling from one place to another, happen to come from or through a plague infested locality. The period of time was arbitrarily selected, and the conditions in the quarantine camps were horrible, judging from old writings. Of course this has been greatly changed and the time for each disease correctly fixed, but I still charge that it is unscientific, very expensive, ineffectual and, worst of all, it encourages communities to rely upon it instead of leading them to enforce the real preventive measures of immunization. At the risk of being considered radical, I would advocate the abolishing of quarantine (and by that I mean the strict meaning of the term and not isolation of the patient), except in very unusual circumstances or where it is too late to immunize exposed persons, and probably in the case of immigrants at our ports of entry.

Probably the first real effort toward preventive medicine occurred in 1798 when Jenner announced the protective value of vaccination against smallpox. It is hard for us to realize the conditions that prevailed at that time. Smallpox prevailed everywhere; from the highest walks of life to the lowest, it was a dreadful scourge and slew or marred its victims at will. As an interesting side light on its almost universal prevalence, there is a record of a poster advertising an escaped prisoner of those days, and emphasized in the description is the statement that he was *not* pock-marked!

Various reasons have been claimed for the decrease in frequency of this disease but

the stubborn fact remains that the present prevalence of smallpox over the world is in indirect ratio to the extent of the practice of vaccination; that is, in any given country the less frequent smallpox prevails, the more general in that country is vaccination.

The next really important advance did not occur until less than three quarters of a century ago. This too was epoch-making in character, but its true significance was not at first appreciated. A young Scotch surgeon noticed the fact that when the waste from a carbolic acid manufacturing concern entered the sedimentation tanks of a sewage disposal plant it markedly checked the processes of putrefaction. He experimented in his laboratory and found that this was due to the presence of carbolic acid. He further found that carbolic acid solutions could be diluted to an extent that they were not harmful to living tissues but were still sufficiently active to prevent putrefaction. He had noted the analogy of the sloughs and often foul discharges following surgical operations to putrefaction and meditated on the possibilities of preventing such conditions by the use of these diluted solutions of carbolic acid. It is hard for us to appreciate conditions in surgery in those days. Infection after an operation was the rule; fever, pus and sloughing were expected and considered the natural process of repair. Mortality was high and hospital wards were horrors beyond our conception.

In the face of all traditions, the young Scotchman put his theories to the test. If you have read Kipling you will remember the description of the steaming tea kettle pouring forth its carbolized vapor over the field of operation with the surgeon carrying out his procedures dimly seen through the mist. After the amputation and suturing, he wrapped up the part in many layers of gauze to keep out what he considered the “poisonous air.” We can imagine his concern as the hours passed until he visited his patient the following day, and his gratification as he found him free from the usual fever and pain! And as each day passed, with astonishingly favorable progress, how he must have forced himself to patience and constrained himself from looking under the swathing bandages! And finally, when the time was ripe, what a dramatic event when he removed the wrappings and witnessed for the first time in history the healing of a wound under anti-

septic conditions! It is rather a sad commentary on our predecessors that they were slow to recognize the new prophet that had appeared. He was severely criticized for a time and considered irreligious in trying to help man escape the natural pains of disease, so commonly thought a part of the divine plan of treating humanity. Soon, however, his results were so striking, so many more of his patients recovered, and recovered so much more quickly, that the results spoke for themselves. Soon he was called to London and his fame and fortune were assured.

It is rather pathetic that his name is most familiar to most of you in a garbled form in the shape of a proprietary product widely advertised nowadays as a wonderful cure for halitosis, but in the medical Hall of Fame the name of Sir Joseph Lister is among the greatest of the great.

It was not until nearly a decade later that the real significance of Lister's discovery was understood and just how his antiseptic technic accomplished its results. Louis Pasteur in the seventies discovered that fermentation and putrefaction were analogous processes, and both due to the activities of minute vegetable organisms belonging to the fungi. Following the analogy still further he discovered the germ of the fatal anthrax, and the germ theory of disease was born. During the marvelous eighties, following Pasteur's lead, the pus germs, the typhoid fever bacillus, the cholera germ, the tubercle bacillus, the diphtheria bacillus, were discovered and their habits studied within and without the body.

The natural sequence was to seek means for preventing the entrance of these newly discovered enemies into people and the date that that idea occurred to some unknown investigator marks the date of the birth of modern preventive medicine.

Results were soon apparent. Cholera, a virulent plague which was brought several times to this country from the old world, was one of the first to disappear. Its last great flare-up was the epidemic in Hamburg in the eighties. Typhoid fever, which used to be so common that every community expected to have at least some cases every year, has become so rare that hardly any cases can be found to show our students in the medical colleges. It has lost caste also, and it is quite as much a reflection on the tidiness of a community for it to have a case of typhoid fever nowadays

as that which a goodly housewife would feel if one found vermin in her house.

Diphtheria, smallpox, yellow fever, malaria, tuberculosis and many others have yielded in great measure their terrors before this new development of medicine—preventive medicine. It has utterly changed the practice of medicine. Before its advent medical practice was largely individualistic; now it is communistic as well.

Formerly, the idea of the practice of medicine was all embraced in its ancient title, the healing art; now, while the curative duty occupies the time and skill of the medical profession, we recognize a broader, greater obligation in seeking to prevent illness wheresoever it is possible. The relative value of these two functions may well be brought out in considering the activities of our fire departments in fighting fires, and our police and courts in combating crime. In the former case, if it were not for our laws governing the building of houses, the installing of proper chimney flues, electric wires, the storing of combustibles, etc., the fire departments of our communities would be overwhelmed in 48 hours. Also, in the case of crime control, if it were not for the teaching of right and wrong in our churches, schools and above all, in our homes, the police and the courts would not be able to cope with the resulting outbreak of crime.

In other words, the fire departments and the police and the courts, just as the curative branches of medicine, are called in to treat cases where *prevention* has failed.

The realization of this fact, together with the discovery of ways and means, explain the extraordinary developments in recent years and that from a small beginning of only 50 years ago we have now an important specialty of medical science. The curative branches of medicine will still have to absorb the larger per cent of the efforts of the medical profession. At least as long as men continue to work as they do, eat as they will, drink what they can get, over-exercise or under-exercise, dissipate in various ways, fight and maim each other,—in other words, live under modern conditions.

The possibilities of preventive medicine are still unfolding themselves so that one hesitates to forecast the achievements of the future. Many formerly devastating plagues are a thing of the past; surgery now invades almost every tract and organ of the human frame, years have been added

to the average span of human life and billions of dollars have been saved to the world's treasuries. The mortality of the human race will always remain 100 per cent, but still too many unnecessary deaths are occurring. There is still too much unnecessary pain and suffering, too many probably preventable diseases take their toll of human lives, and the average span of life should be still further extended.

With the recognition of preventive medicine as a special branch, it seems to the writer that there is a danger in developing a habit of mind of assigning all such effort and responsibility to the workers in this field alone.

When we read the accomplishments in the brief history of preventive methods, the list of glorious names of those who were the pioneers and their worthy successors, we of the curative branch of medicine are stirred to emulation. We wish we too could have a part in conferring such benefits, and share in this great movement—and all the while, clamoring at our doors is just such an opportunity.

Preventive medicine as a specialty of medical practice must concern itself primarily with general problems of disease prevention,—mass prevention, in other words, rather than individual.

We, of the curative branches of medicine, are concerned primarily with the disease problems of the individual, and in that field there is today a chance for service which, if systematically followed out by the profession at large, will achieve results very fairly comparable with those of our colleagues of the preventive branch.

I refer to the periodic health examination of the apparently well, and do not hesitate to term it one of the greatest developments of modern practice, pregnant with the greatest possibilities for disease prevention of the future.

It cannot be denied that we have been rather slow to realize the importance and value of this movement and I think the explanation is not difficult to find. For centuries the traditions of the medical profession have been in the direction of relieving the sick and suffering. There is an inborn feeling that such require our whole time and attention. You all are familiar with that sense of resentment we feel at being called hurriedly or at unseemly hours only to find no real emergency, or the patient in no real actual need of medical attention. It is not that we are sorry the patients are

not sicker than they are, but rather that the time is taken from those who may be in much greater need of our services. So it is when an apparently well person presents himself for an examination, there is an instinctive resentment toward giving the time necessary for a thorough examination.

Relatively is a word much in vogue nowadays and very appropriate in this situation. The only way for the medical profession to come to an appreciation of the possibilities in this procedure is for it to thoroughly grasp its very great importance and real value to the practitioner himself, to improving and increasing his practice, and above all, to his patients.

To the Practitioner.—We all know the value of postgraduate work; the routine examination of well individuals may be compared to such experiences. Familiarizing oneself with the normal organs, their normal secretions and reactions cannot but emphasize abnormal findings and increase our ability in the detecting of such. In these days of marvelous development of new laboratory and other often highly technical tests, there has been a tendency to neglect the old and tried methods of physical diagnosis. I would not be understood as belittling these aids to diagnosis; in many instances they are invaluable and many cases tax all our resources to the utmost. I do say, however, that many cases are referred to laboratories and clinics where thorough routine physical examinations with the ordinary clinical tests would establish the diagnosis at home, with the saving of considerable expense to the patient and increasing the prestige of the attending physician. It is said that as high as 80 per cent of diagnoses of all ailments may be made in this way. Certainly the importance of self-improvement in the technic of these simple methods cannot be overestimated.

Increase of Practice.—There is nothing appreciated more by our patients than the exhibition of personal interest on our part, and nothing more resented than the reverse. If a man presents himself for an examination, if this is cursorily made and he is simply assured that he is "all right," but little impression is made, and too often it is a bad impression, and he feels that he has received but little for his money. If, on the other hand a thorough examination is carried out, the findings tabulated and explained, the patient will sense the interest shown and the good impression made will surely bear fruit at some later time.

The Value to Our Clientele.—It is needless to stress the importance of detecting the early appearance of tuberculosis, diabetes, cancer, nephritis, and so on, or to dilate upon how frequently such may be found in the apparently well. These are enough alone to justify the periodic health examination, but many, many more may be cited. Consider the value of a record taken a few months previously of the condition of the heart, blood-pressure and kidneys when treating a case of pneumonia, or an apoplexy, or in fact any serious illness.

One of our largest life insurance companies has been offering this service to its policy-holders for some years and unreservedly endorses its importance. This company states that it has by this means prolonged the lives of its policy-holders an average of two years. This sounds most philanthropic but two more years of life mean just that many more premiums paid, which to a large company means millions of dollars at a very small cost. It is purely good business on their part, and if good business for the companies, it is certainly good business for the physicians and more than all it is good business for the patient.

The patient's interest may be expressed in another way. Any individual who earns an income of \$5,000 a year has in his body as a productive power a vested capital, on a conservative estimate, of \$100,000. This is not like money in the bank, or invested in bonds or business that will bring returns rain or shine, sickness or health, but rather as in a machine that produces according to the way it is run, capable of producing more if kept in a state of good repair, of producing less if run badly or allowed to run down, and which will eventually wear out entirely.

If one owns an expensive motor car, think of the care he gives it; he sees that the oil is changed regularly, fills it with good gasoline, is careful of the alcohol he puts in *its* radiator, does not allow *it* to stay out all night, and periodically has it inspected and tested. Why? To save money in the long run; and yet how do people treat their bodies, often worth 10 or 20 times as much in actual cash as their motor cars?

If for no other reason, then, when a man brings his \$50,000, \$100,000, or \$200,000 body to us for inspection we should appreciate the importance of that inspection to the man and to his family and give him all the attention and care that his case requires.

SUMMARY

To summarize, preventive medicine up until a half century ago was practically an unknown science.

Since its real inception approximately 50 years ago its progress has been extraordinary. It is impossible to compute the number of lives saved, the suffering done away with and financial saving to the world.

As a science it has two phases, that for the masses and that for the individual.

For the former it has been found necessary to develop a special branch of medical practitioner, trained in public health problems, and working for the conservation of health in its broadest terms. The future developments in this direction will undoubtedly be of great practical utility and value; one would be rash to prophesy the possibilities.

The opportunity of great contributions to the prevention of disease in the individual is offered to practitioners of medicine in general. One of the greatest opportunities for service in the future for our individual patients lies in the periodic health examination.

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NEUROLOGICAL SEQUELAE OF INFECTIOUS DISEASES*

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PASSAGE OF TOXINS INTO THE CENTRAL NERVOUS SYSTEM

Most infectious diseases, even when they are sharply localized, invariably produce functional disorders and usually pathological changes in other parts of the body. Psychic changes, ranging from slight emotional variations and peculiar bodily sensation to delirium and coma, are very common. Complications and sequelae characterized by neurological signs referable to the cerebrum, cerebellum, spinal cord and peripheral nerves, are comparatively uncommon.

This relative freedom from organic nervous phenomena may very probably be referred to the peculiar isolation of the central nervous system. The brain and spinal cord are protected by a water-jacket, by the meninges, and by the bony encasement. The blood vessels, permeating everywhere, do not generally come into direct contact with nervous tissue but are

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

separated from it by cell-lined spaces filled with fluid.

There is a cellular barrier between the blood and the cerebrospinal fluid which prevents passage of many substances from the one system to the other. It is common knowledge that arsphenamin injected into the blood stream appears in the cerebrospinal fluid only in minute quantity. Buehler (*Arch. f. Psychiat. u. Neurol.* **77**:613, July, 1926) has studied this question by colorimetric estimation of the amount of sodium bromid in the cerebrospinal fluid after ingestion of this drug by mouth. He believes that permeability is low in the young, increases to a level at 30 to 40 years of age, and increases with age.

There is some experimental basis for the belief that substances which have passed the barrier between the blood stream and the cerebrospinal fluid may be absorbed by different parts of the brain in different amounts. Haldi and Routh (*Am. J. Physiol.* **75**:294, Jan., 1926) find that absorption depends upon the chemical composition of the tissues, particularly its acidity, and that cerebrum, cerebellum, midbrain and medulla differ in their receptivity of water, salt solution, glucose and hydrochloric acid.

The studies on permeability were made upon healthy animals. In the presence of infectious disease there are undoubtedly in many cases pathological changes in the vascular endothelium which appear to increase the permeability and render it less selective. Zand (*Rev. neurol.* **1**:473, 1927) has shown that inflammation of the meninges renders them more permeable.

ENDARTERITIS OF SMALL CORTICAL VESSELS IN INFECTION

It will be apparent from the cases to be referred to later that nervous complications in infectious diseases exist in various degrees of intensity and with various combinations of symptoms. I have mentioned so far the permeability to toxins (and possibly filterable viruses might be included) of the intact or slightly damaged barrier between the blood stream and the cerebrospinal fluid. Injury to the vascular endothelium to a slight extent appears merely to increase permeability to noxious substances. But when this injury is more severe a new factor of damage becomes active, namely interference with blood supply to the cortex. With severe infections there is often an endarteritis of small cortical vessels, which narrows the lumen or obstructs it entirely. One finds then in addition to cloudy swellings of ganglion cells, due to toxins, areas

of necrosis due to interference with nutrition. A group of cases showing these severe changes has recently been reported by Winkelman and Eckel (*Arch. Neurol. and Psychiat.*, April, 1929, page 863). "The clinical picture consisted of delirium, at times of a most severe degree, with increase of psychomotor activities such as restlessness, muscle twitchings and even convulsions, hyperesthesia, visual and auditory hallucination and meningeal irritative signs were at times present."

It seems fair to assume that between the mild changes, which merely increase permeability to toxin, and the severe types as described by Winkelman and Eckel, there may be many intermediate grades, with a corresponding gradation of the clinical pictures.

ANEURYSMS OF CEREBRAL VESSELS

Aneurysms of cerebral vessels are not usually syphilitic. In diseases, and especially from infections of the heart valves, septic emboli may lodge in the arterial wall causing it first to bulge and finally to produce an aneurysm. The small vessels are particularly affected. (Sands: *Arch. Neurol. and Psychiat.* Jan., 1929.) The symptoms are due to pressure on surrounding structures and finally to subarachnoid hemorrhage. Unless the affected vessel is in direct contact with a cranial nerve the first symptoms are those of hemorrhage.

NEUROTROPIC INFECTIONS

There are supposed to be filterable viruses which when implanted anywhere in the body tend to pass along the peripheral nerves to the central nervous system, and there develop. With some of these the primary site remains symptomless, or nearly so, while the nervous symptoms are very prominent. Such are herpes zoster, poliomyelitis and rabies. With others of the group the primary implantation furnishes the prominent part of the symptomatology while the nervous symptoms appear as occasional sequelae. Among them are chickenpox, cowpox, vaccine, smallpox, typhus, measles and mumps.

Diphtheria and tetanus, although not due to viruses, behave similarly. In the former nervous sequelae are only occasional, while in the latter nervous manifestations constitute the disease.

LOCALIZED INFECTIONS ADJACENT OR DISTANT

This is a heterogeneous group depending more upon clinical observation than upon experimental demonstrations. The principal exception is the work of Orr and Rows some 15 years ago upon the production of cord degenerations after the implantation in the abdo-

men of permeable capsules containing cultures of pathogenic bacteria. Included are infections of the nasal sinuses, teeth and tonsils; middle ear infections; abscesses adjacent to the spinal column, perinephric abscesses, pelvic infection, lung abscess, bronchiectasis, osteomyelitis.

CASES

I shall not attempt to cover the subject by citing cases in a systematic way, but shall give merely the principal points in a series of my own cases.

1. *Posterior Fossa Syndrome in Tonsillitis*.—A girl of 8 years complained of occipital headache, vomiting, progressive dimness of vision, and staggering gait. She had papilledema and was unable to perform alternating movements with her hands. Symptoms of about 6 weeks' duration. She was advised to enter hospital for study, as I thought she probably had a cerebellar tumor. Instead she consulted an osteopath, who removed her infected tonsils, after which she recovered rapidly. I believe this was an aseptic adhesive meningitis.

2. *Paravertebral Abscess With Flaccid Paraplegia*.—A man, 38, had evidence of a severe general infection, with pain deep in the right lumbar muscles. Rather suddenly he developed a flaccid paralysis of both legs, with incontinence. He had a cloudy but sterile spinal fluid. Following evacuation of a right lumbar abscess his spinal symptoms rapidly cleared up. I interpreted this as a parallel to Orr and Rows experimental myelitis in animals.

3. *Frontal Sinusitis with Transient Hemiplegia*.—A young woman of 25 had a typical left frontal sinusitis. The sinus was cleaned out with a suction apparatus. The next morning she found that she had moderately severe right hemiplegia without any other symptoms. The neurological findings were weakness and increased reflexes on the affected side, with a right Babinski reaction. She recovered completely in a few days. I looked upon this as a toxic localized meningitis. Such cases are not uncommon and often raise the question of brain abscess.

5. *Measles with Encephalitis and Residual Psychic Defects*.—A girl, aged 9, had a moderately severe attack of measles. On the sixth day after the eruption, without warning, she had a severe convulsion and was unconscious all day. When consciousness returned she moved her left arm restlessly, had weakness of the left side of the face and a failure of convergence of eyes. After a day or two she no longer felt ill, but could not read although her vision was not affected. She did not recognize her girl friends, could not interpret the familiar pictures in her room, and her home seemed strange to her. She understood conversation and talked very well but had some difficulty with nouns. She gradually improved in all these respects but there was a change in her personality. She was more irritable and less kindly and pleasant than before.

6. *Measles with Flaccid Paraplegia*.—A boy, about 6, as the eruption of measles was beginning to fade developed complete lax paralysis of both legs. This cleared up completely in two weeks.

Ford (Bull. Johns Hopkins Hosp. Sept., 1928) finds that 113 cases of nervous complications in measles have been reported and adds 12 more. He states that such complications occur in four-tenths of one per cent.

7. *Diphtheria with Peripheral Neuritis and Myelitis*.—A man, aged 30, after an undiagnosed sore throat, suddenly found that on trying to drink, the

water came out his nose. The next day his legs became weak and he was unsteady on his feet. His arms became weak, and in a day or two arms and legs were powerless. He had a cloudy spinal fluid with predominant lymphocytes, globulin, and excess of albumin and a spontaneous clot. He recovered completely in a few weeks.

8. *Meningococcic Otitis Media Followed by Meningitis*.—Routine examination of the pus draining from an infected middle ear after puncture of the drum, showed a gram-negative intracellular diplococcus, which was subsequently shown to be meningococcus. The patient developed meningitis and died.

This case, of course, does not belong to the group. I include it merely to suggest that so typically a nervous disease as epidemic meningitis follows the same formula as the others of the group,—first a local infection, then the nervous sequel. It is only because of the frequency of the meningitis that we do not call it a "sequel."

9. *Respiratory Infection Followed by Brachial Plexus Neuritis*.—A right-handed coal miner had a fever, with coryza, then cough, with aching all over and great prostration. About the time he began to feel stronger his right arm felt weak and in a day or two he could not move it. There were some patches of reduced sensation and tenderness in the muscles. After a few weeks, considerable atrophy of the scapular muscles, the deltoid, the triceps and the biceps, appeared. He has improved gradually.

Respiratory infections of this type are frequently followed by nervous sequelae, ranging from severe encephalitis and softening of the spinal cord to transient palsies of single muscles.

10. *Typhoid Fever with Hemiplegia*.—A boy 16 in the third week of a rather mild attack of typhoid fever developed a left hemiplegia, face, arm and leg. The paralysis had disappeared in three weeks.

11. *Gastro-Intestinal Infection with Acute Hydrocephalus*.—A child of 5 months was brought into Children's Mercy Hospital with fever, diarrhea and dehydration. After a few days the child became lethargic, the fontanel bulged, and the scalp veins were prominent. After ventricular puncture and alkalies the child recovered completely.

This sort of sequel to gastro-intestinal infections in infants is not uncommon.

12. *Vaccinia with Encephalitis*.—A man of 50, who had a recent vaccination wound, was brought into the hospital because of drowsiness, high fever and pain in the right side of his head. He had diplopia, increased reflexes and a Babinski on the left side. In a few days his fever became very high and he died. No autopsy was performed. I had considered this case a brain abscess. I saw him some years ago when I was not familiar with the nervous aspect of vaccination. I believe now that it was a case of vaccinia encephalitis.

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SEQUELAE OF ACUTE EPIDEMIC ENCEPHALITIS*

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Since Economo made report upon an epidemic which occurred in Vienna in 1917, naming the disease "Encephalitis Lethargica" the

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

name "Epidemic Encephalitis" being later substituted by Kinier Wilson because, as he suggested, it was the *patient* who was lethargic, and not the *disease*,—there has been much discussion concerning this disease. Few, if any diseases, have presented so many problems for consideration by medical men, or have become of such world-wide interest.

Is epidemic encephalitis a separate and distinct disease, or is it an unusual manifestation of some formerly well known infection, such as influenza, or Heine-Medin disease? I believe it is a separate disease and not related to any other disease or infection.

Is it a new disease? I believe, as an epidemic, yes; perhaps sporadic cases have been seen prior to 1917, and some local epidemics have been described as far back as 1712 of a disease in which profound sleep was a common symptom. These epidemics all occurred in central Europe but, prior to 1918, no such disease was described as appearing in other parts of the world. Since that time it has occurred with such prevalence as to attract world-wide attention.

Few, if any diseases, can claim so much and such a variety of residual disability. Another question worthy of discussion is, are the residual disabilities true sequelae, or are they manifestations of an infection which is still, to some degree at least, active? In other words, are they symptoms of chronic epidemic encephalitis, with remissions and exacerbations? In my opinion, they are, in many cases, symptoms of an acute infection which has become chronic. Evidence of this is the tendency of the lesion to extend from the original focus of infection. A number of Parkinsonian patients under my care have died of bulbar palsy, symptoms of bulbar palsy first appearing many months after the onset of the Parkinsonian symptoms. Then too, it may be months, or even a year, after the acute attack before Parkinsonian symptoms appear. And many of the residual disabilities, such as the Parkinsonian condition, are slowly or rapidly progressive. A. Netter, French student of epidemic encephalitis, found evidences of exacerbations after long quiescence, and of new lesions along with the old ones; also contagiousness of the disease at a late stage. He reports a case of a young girl, acutely ill with encephalitis in the spring of 1918, which was followed by persistent rhythmic movements of the right shoulder. In September, 1920, she had a recurrence of diplopia and two months later her father, as Netter believed, contracted the disease from her. He also reported a patient dying in March, 1921, of a relapse of an acute attack which he had in January, 1920.

We must admit that the virus of this disease is very tenacious and no patient having had an acute attack can be considered safe from recurrence for a long time thereafter.

In many cases the residual disabilities can be credited to failure of diagnosis and improper treatment during the acute attack. It has been my observation that more than 50 per cent of the patients are not diagnosed during the acute stage.

Parkinsonianism is one of the best known of the so-called sequelae of epidemic encephalitis and, insofar as I know, it rarely, if ever, follows any other disease, yet approximately 75 per cent of these patients who have come under my observation report that a diagnosis of influenza was made at the time of the acute illness.

Another fact of observation well worthy of our consideration is this: The degree of illness during the acute stage is no index as to the degree of disability which may later develop. Some of the most severe Parkinsonian cases report an illness of short duration, so mild that the patient was not confined to bed during the entire illness, and some did not consult a physician. Any patient reporting diplopia, or having other symptoms of cranial nerve disability during an acute illness, even of mild degree or of short duration, should be suspected of having epidemic encephalitis.

I. H. Holthusen and R. Hoptman observed sixty-two cases in an epidemic in Heidelberg and vicinity in the early part of 1920 and followed up these cases for more than a year after the acute attack. At the expiration of a year only a few patients had made complete recovery, the great majority of them showing sequelae. The sequelae varied greatly in importance; many of them were mild and unimportant, such as inequality and sluggish light reaction of the pupil, nystagmus, impaired conversion. A most common complaint was that of loss of energy and initiative and no ability for enjoyment. Another common complaint of the patients was that they were slow in getting work done; they were slow in eating and talking, and relatives complained that in some cases the patients would go to sleep during their meals. In eleven cases there was a well defined motor disturbance, with rigidity, contractures and abnormal movements, simulating paralysis agitans. Choreiform, choreo-athetoid and myoclonic movements were common sequelae. The myoclonic movements usually involved the abdominal muscles. The motor disturbances were frequently accompanied by pain, which was considered either due to a thalamic lesion or to involvement of the nerve roots. In those cases in which pain

was a common symptom the patients were wakeful at night and drowsy in the daytime; frequently they acquired the habit of getting most of their sleep in the daytime. Of all the residual symptoms, insomnia is the most frequent and existed in one-third of all the patients.

2. Morris Grossman reports on 145 cases of epidemic encephalitis observed at the Mt. Sinai Hospital. Of these patients, eighty-nine were induced to return for reexamination, after a period of six months or more following their discharge from the hospital. He states that sufficient time had not yet elapsed since the acute illness, nor is the number of cases in this study large enough to warrant drawing absolute conclusions as to what the ultimate prognosis will be. There are, however, a number of striking facts worthy of emphasis, viz.:

1. Psychic functions in some form or another were disturbed in 55 per cent of these patients.

2. Insomnia was present in 55 per cent.

3. Tremor and irregular involuntary movements were found in 55 per cent.

4. The deep reflexes were altered in 30 per cent and tonus in the muscles was disturbed in 18 per cent.

5. The cranial nerves showed residual signs in 64 per cent.

6. Pupillary disturbances were found in 30 per cent. Five patients had Argyll-Robertson pupils.

7. About 8 per cent of the patients gave signs of progression at the time they were examined.

8. The mortality among the 145 patients admitted to Mt. Sinai Hospital was 20 per cent.

He states from these findings, one might venture this tentative prognosis: Probably less than 20 per cent of the patients who become ill with epidemic encephalitis die during the acute stage of the illness, as usually only the most severe cases reach the hospital. Of those who survive the acute stage, about 10 per cent may develop a progressive disease of the central nervous system. The remainder will make a good functional recovery in from six to twenty-four months with the probability of progressive approach to the normal after that period.

3. P. Hofstadt finds from the experience at the Children's Clinic, Munich, that only one of forty-four children affected with epidemic encephalitis escaped without some sequelae. Insomnia, associated with motor restlessness, was the most frequently observed. Next in frequency came the "amyostatic syndrome," choreas, the choreo-athetoid movements and

psychic disturbances, and finally, the dystrophias adiposogenitalia.

4. R. Cruchet observed thirty-two cases in 1918 and reported as follows: Twelve died; a majority of those surviving showed sequelae as follows: Parkinsonian rigidity, myoclonias, psychic disorders with delusions of persecution, dementia with suicidal tendencies, phobias of various kinds, anxiety states, etc. One case showed spastic paraplegia and two cases developed a trigeminal neuralgia.

5. B. Bychowski observed forty cases in Poland late in 1919. It is his opinion that few cases completely recover. Many had relapses with prolonged insomnia and nocturnal restlessness; all of them showed mental changes; they were slow in talking and thinking, were apathetic, some of them depressed. In some, menstruation was absent for months and sexual desire disappeared. In a few, increases in weight occurred up to the degree of a veritable dystrophias adiposogenitalia. In some, polyuria and other signs of endocrine disorder appeared; the Parkinsonian syndrome was observed as occurring in some cases.

6. Fritz Hartmann considers chronic serous meningitis as a common sequel of epidemic encephalitis. In many cases there is increased cerebrospinal fluid pressure for many months after the acute illness. This is usually associated with symptoms of meningeal irritation. He reports four cases, all showing myoclonic and choreic movements. He states that only one of these cases showed increased fluid pressure in the acute stage. After several months, the fluid obtained resembled that of serous meningitis. There was very slight increase in cell count and globulin content. To serous meningitis he attributes many of the residual symptoms met in these cases, namely: headaches, lassitude, drowsiness, slowness of thought, slight motor restlessness and pains in the extremities. He punctured some of them repeatedly but the result was disappointing as the pressure quickly returned.

Froelich's syndrome is a rare sequel of epidemic encephalitis.

7. G. Stiefler reports the case of a girl, 13 years old, who had a typical attack of lethargic type of epidemic encephalitis in February, 1920, which was first followed by choreiform movements and, after a few months, by increase in weight (from 32.5 kilos in April, 1920, to 53.8 kilos in May, 1921). There was increased diuresis and diaphoresis, thinning of the hair and cessation of growth. The adiposity was particularly marked about the abdominal wall, genitalia, thighs and neck. The fingers were strikingly delicate and tapering.

From five to six liters of urine were voided daily, free from sugar, and the sugar tolerance was increased. The menses did not appear and the pubic and axillary hair was absent. This condition is assumed to be due to interference with hypophyseal function by inflammatory processes in the region of the infundibulum.

8. M. Manson reported as follows on eleven cases of epidemic encephalitis observed by him: Six died during the acute illness. At the expiration of nine months following the onset of the illness, only two cases were able to return to work and even they were both said to be troubled with some loss of memory and lack of confidence in themselves. A third spent five months in an asylum, suffering from acute dementia after leaving the hospital, and it was several months later before he was able to return to work. Of the other two patients, one is still mentally feeble after being discharged from the hospital, is willful and has a propensity for lying. The remaining patient, nine months after her return from the hospital, remains listless and apathetic and shows no desire to resume her work. These reports could be supplemented by many others but they will suffice to illustrate the seriousness of this disease, both as relates to life and to the persistence of disabilities following the acute illness.

A recent report was made by Allan C. Parsons to the Ministry of Health of Great Britain on some 35,000 cases of epidemic encephalitis which had been reported between January, 1919, and December, 1926. He stated that if 100 are investigated three years after the primary illness the average findings will be as follows: Patients who have survived without serious consequences, 25; patients who have died, 35; patients who have become disabled in mind or body, or both, 40.

In 1921, 77 per cent of the deaths occurred within three weeks of the onset. This percentage had fallen to 47 per cent in 1926 indicating that the number of deaths occurring in the later stages is growing larger each year, after the onset. The proportion of deaths occurring within a month of onset is greater among those under sixteen years of age—91.5, while in those over sixteen it was 69.2. In a series of 3,558 cases investigated within six months of the onset, 41 per cent showed sequelae; of 1,464 unrecovered cases, 56 per cent were unable to follow any occupation.

It has been my observation that sleep disturbances are very common sequelae of epidemic encephalitis. These disturbances may be of the nature of insomnia, somnolence or

of the hours of sleep, patients sleeping in the day time and wakeful at night.

The insomnia following epidemic encephalitis is, in many cases, very obstinate in character. A young boy, thirteen years of age, is illustrative of this statement. His insomnia was of such a degree, extending over a period of many weeks, that it was practically impossible with large and even dangerous doses of hypnotics to induce sleep. He now has, after a period of two years, a well developed Parkinsonian syndrome.

The somnolence may also be intense, patients sleeping twelve to eighteen hours per day, and feeling sleepy practically all the time, relatives and associates observing that they oftentimes will fall asleep during their meals—in some cases they are almost instantly asleep upon sitting or reclining.

The psychic sequelae are usually of a depressive nature. Patients are mentally depressed; have hypochondriacal symptoms; are mentally slow; memory is poor; there is decreased power of concentration and loss of attentive control; the "inferiority complex" may be a sequel; occasionally, an exalted mental state, comparable to paresis is seen.

In young children the sequel may be a mental deficiency of a permanent nature. Associated with mental deterioration, there may be a condition of moral perversion. Children who previous to the acute illness were normal in character, become liars, thieves, and generally moral perverts. I have observed a considerable number of such cases. All of the various types of neurosis and neuropsychoses may be observed following encephalitis.

The types of anatomical residual disabilities are as numerous as the anatomical types of the disease.

In a study of the sequelae of epidemic encephalitis I think it well to call attention to the anatomical classification of this disease, which is as follows:

First: Cases with general symptoms, indicating involvement of the nervous system, but absent, scant, or fleeting localizing signs; second, meningitic type; third, cortical type; fourth, pyramidal system type; fifth, thalamic type; sixth, corpus striatum type; seventh, brain stem type; eighth, cerebellar type; ninth, spinal type; tenth, peripheral nerve type; eleventh, sympathetic nervous system type; twelfth, multiple diffuse lesion type. I shall briefly analyze the various anatomical types.

First: *Cases With General Symptoms.*—In the early stages there are signs of cerebral irritation, restlessness, delirium, and occasionally hallucinations and delusions. As the disease

progresses lethargy, stupor and general muscular rigidity appear.

Second: *The Meningitic Type*.—This type is characterized by the following symptoms of meningeal irritation: fever, headache, stiffness of the neck and a slight Kernig sign.

1. Chronic serous meningitis with persistent headaches and clouding of consciousness, occurs secondary to the meningitic type.

2. Sequelae secondary to the cortical and pyramidal system type are usually monoplegias, hemiplegias and aphasias.

3. Following the thalamic system type we have persistent spontaneous pains and choreo-athetoid movements.

4. One of the most common sequels of epidemic encephalitis is the Parkinsonian syndrome, following the corpus striatum type, due to lesion of globus pallidus. This sequel may develop long after the acute illness. It is progressive and no complete cure has been reported.

5. Disability of the cranial nerves may follow the brain stem type, if the patient survives the acute attack. Symptoms: Pupillary disorders, ophthalmoplegias, facial paralysis, dysarthria, clonic spasm of tongue and pharynx, paralysis and atrophy of muscles of neck.

6. Cerebellar ataxia may be a sequel of the cerebellar type.

7. The disabilities secondary to the spinal type are many and varied. Amyotrophic lateral sclerosis has been reported; symptoms of anterior poliomyelitis, or posterior poliomyelitis are frequently seen. There may be symptoms of pyramidal tract lesions, or of a transverse myelitis; there may also be symptoms of a radiculitis.

8. Disabilities secondary to the peripheral nerve type are of those resulting from a neuritis. There may be paralysis and atrophy of a small group of muscles, or of almost all the voluntary muscles. In one of my patients all the voluntary, excepting those of the face, showed intense atrophy.

Third. *Cortical Type*.—The predominating symptoms of this type are, isolated monoplegias, aphasias and hemiplegias.

Fourth. *Pyramidal System Type*.—In this type the first symptom may be a sudden hemiplegia with later symptoms of cranial nerve paralysis.

Fifth. *Thalamic Type*.—The typical thalamic syndrome rarely occurs in this type the principal symptoms being ataxia and choreo-athetoid movements with involvement of the internal

capsule and other adjacent structures, and persistent spontaneous pain.

Sixth. *Corpus Striatum Type*.—Anatomically, the corpus striatum is divided into the globus pallidus, the caudate nucleus and the putamen. The principal functions of the corpus striatum are: (1) regulation of muscle tone; (2) maintenance of muscular repose; (3) regulation of associated and automatic movements.

Fourth. *Control Over Emotional Expression and Facial Function*.—The virus of epidemic encephalitis seems to have a preference for the globus pallidus over the other parts of the corpus striatum. Lesions of the globus pallidus give a more or less Parkinsonian syndrome, with general muscular rigidity, irregular cogwheel release on passive movements, tremor, mask-like expressionless faces, bowed rigid attitude, and festinating gait.

Seventh. *Brain Stem Type*.—Involvement of various cranial nerves is a prominent symptom of this type. A true bulbar palsy with death quickly intervening is not an unusual result.

Eighth. *Cerebellar Type*.—Such cases are rare, cerebellar ataxia the principal symptom.

Ninth. *Spinal Type*.—In this type may be observed either anterior or posterior poliomyelitis. In four cases which I have observed there was an ascending myelitis.

Tenth. *Peripheral Nerve Type*.—Such cases occur as lesions of one or more peripheral nerves of the spinal group. The lesion may be limited to one nerve or a group of nerves, or may be general in its manifestations.

Eleventh. *Sympathetic Nervous System Type*.—Any of the ganglia or nerves of the sympathetic system may be involved in this type, but it is my observation that those of the cervical region are most usually affected, a pin point Argyll-Robertson pupil not infrequently resulting.

Twelfth. *Multiple Diffuse Lesion Type*.—In this type the lesions may be scattered indiscriminately throughout the central nervous system, giving localizing symptoms similar to a disseminated sclerosis.

PROGNOSIS AND TREATMENT

Chronic serous meningitis does not respond well to treatment; spinal punctures, repeated, may help; intraspinal injections of blood serum in some cases are beneficial.

The monoplegias, hemiplegias and aphasias, resulting from the cortical type, are usually favorable as to a reduction of the disability, and in some disability is relieved entirely.

Sequelae of the thalamic type do not respond

well to treatment, and prognosis as to ultimate recovery is not good.

The Parkinsonian cases do not recover. They have remissions and exacerbations with a tendency to steadily progress. We may hope in the early cases to check the progress and prolong remissions, but cannot hope to remove disabilities entirely.

The sequelae of those cases which survive the brain stem type can, in most cases, be relieved. This is especially true of the myoclonias and dysarthrias. I have had a number of such cases who made complete recoveries. Cranial nerve palsies also may clear up.

The cerebellar ataxia sequela does, in many cases, disappear. The spinal cord sequelae are usually the result of degenerative changes and prognosis usually is not good.

Although there may be a lessening of disabilities, the sequelae of the peripheral nerve type are favorable as to complete or partial recovery; the sequelae of the sympathetic and multiple diffusion lesion type are not favorable. There may be a permanent narrowing of the pupil and enduring symptoms simulating a multiple sclerosis.

My treatment of the sequelae does not greatly differ from my treatment of the acute attack, as I assume the many of the so-called sequelae are but manifestations of a chronic or subacute condition.

I use the sodium salicylate and sodium iodid intravenously, 15½ gr. each daily, or every other day. I give sodium cacodylate or neosalvarsan, subcutaneously or intravenously. I also give a 50 per cent glucose intravenously, 20 cc. every second day; also, tincture nuxvomica 10 to 15 m. three times daily; hyoscin 1/200 to 1/50 gr. daily will give some relief to the Parkinsonian cases.

In some cases antityphoid inoculation is helpful. We should always bear in mind that treatment during the acute attack—therefore an early diagnosis—is very essential and, in my opinion, all doubtful cases should be treated as actual cases.

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DISCUSSION

DR. C. H. SUDDARTH, Excelsior Springs: I wish to call Doctor Robinson's attention to a case that he and Doctor Teachenor saw with me at the Excelsior Springs Sanitarium in December, 1927. A Mrs. T., diagnosed as encephalitis lethargica by several clinicians and laboratory technicians, and I don't think they were mistaken in their diagnosis. Her spine was punctured and drained fourteen times; gave meningitis serum interspinally. The high interspinal pressure gradually subsided. At different times she was given large doses of salicylates—sodium iodid and mercurochrome intravenously. Fi-

nally, to meet the clinically symptoms, gave repeated small doses of mercury, and she improved. Continued treatment for about five months, every day. She has made a complete recovery. From the beginning of her illness she had a periostitis of the cuboid bone of her right foot; we put it in a cast for five months. I saw her a month ago; it has completely recovered with an ankylosed joint. Her mental condition is normal.

Six days before she was taken ill she had gone through the Mayo Clinic and was found in perfect health; they assured her she should live to be one hundred. Six days later she was taken to the hospital with what was then thought to be influenza; in a few days she lapsed into a lethargic condition and remained so for five weeks. She was taken to the Excelsior Springs Sanitarium and after nine months in the hospital she returned to her home. I have seen her several times since then and her recovery is complete, both mentally and physically.

DR. E. T. GIBSON, closing: I would like to say a word about Dr. Robinson's paper, merely to emphasize one or two points he made, not by way of injecting anything new. One of his points was that the so-called sequela of lethargic encephalitis is really a continuation of the original disease. I recall one case which was pretty well checked up that would seem to show that. This was a boy who went through a quite typical course of lethargic encephalitis, developing a parkinsonian syndrome, and at the end of two years suddenly developed convulsions and died. At autopsy his brain was simply peppered with fresh minute hemorrhages. No new element had entered the case as far as we could see. While no one yet has isolated any causal organism, it seems to me that this case substantiated the idea that the sequelae are really a continuation of the original process. So far as we know, lethargic encephalitis, with regard to the length of its course and its intermittent manifestations, is similar to tuberculosis and syphilis.

As to the time after the initial infection that secondary infection may appear, the longest period that I recall was five years. This was in a soldier whose record was pretty well documented. He had an epidemic encephalitis five years before the Parkinsonian syndrome appeared. In one case in the literature the interval was seven years. Occasionally the Parkinsonian syndrome develops after other infections than lethargic encephalitis. I have seen it after typhoid fever, but not often.

DR. G. WILSE ROBINSON, closing: I am very glad to have Dr. Gibson give expression to the idea that these residual disabilities are not the so-called sequelae, but are a continuation of an infection that progresses. That is a point that should be emphasized.

The diagnosis should be emphasized. Some of the most severe cases of parkinsonism I have ever seen were in patients who reported that they were ill only two or three days; they did not go to bed nor call a physician. They thought they had a bad cold, a little aching and fever—just feeling badly and unable to sleep. One patient had not slept for three nights. Then he slept more than usual for several days. Then he was able to go to work. It was one of the most severe cases I have seen, the symptoms developing several months thereafter.

Patients who have had an acute illness of any kind resembling influenza should be investigated very carefully, and always ask the patient if at any time he has had double vision. Some complain of double vision lasting a few minutes, others a few

hours. The cranial nerves should be examined carefully to see if there is any manifestation of disturbed function. If there is, the chances are 99 per cent that the patient has epidemic encephalitis, not influenza. Then after they get over it they should be examined frequently. Ask the patient how he is sleeping, and about his mental activity. Ask his family about any slowness of speech or movement and if there is any slowness in doing the things he formerly did. Ask if there is any stiffness of the muscles. One of the first symptoms of parkinsonism is that the patients observe they do not swing their arms as easily as before. These patients carry their arms rigid, they have a stooping attitude, with head bowed. If there is stiffness of muscles following acute infection, with disturbance of gait so that they do not walk as formerly, suspect epidemic encephalitis and continue treating them as long as those symptoms persist because they have a progressive infection.

MODERN METHODS OF TREATMENT IN NEUROSYPHILIS*

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The treatment of syphilis of the nervous system has interested neurologists and the medical profession as a whole for many decades, but, until recently, with the introduction of newer methods of handling such diseases as paresis and tabes, the interest was a passive one and not energetic and active with a reasonable hope of accomplishing something in a fair proportion of the cases treated. It is next to impossible to lay down any definite rules for the treatment of the various forms of syphilis of the nervous system, yet it is necessary to have some type of a more or less elastic routine which can be followed.

In recent years most of the work done in the treatment of nervous system syphilis has had to do with paresis. There are few but that will admit that there has been made a very definite advance in the handling of paresis during the past decade. Early in this past decade most of us were intensively treating paresis with salvarsan and neosalvarsan intravenously and, in certain selected cases, by the Swift-Ellis method of intrathecal therapy of salvarsanized serum in one or another of its various modifications. At times this therapy gave apparently brilliant results, but on the whole it has been discontinued on account of the tremendous hazards associated with its use and the relatively few cases considered entitled to this measure. Usually intrathecal therapy was given by the lumbar tap route, but in some cases intraventricularly after a trephine opening of the skull had been made.

In 1919-1920 Wagner-Jauregg introduced the malarial therapy of paresis. For a number of years he had treated patients by various fever producing methods,—the use of old tuberculin, later killed typhoid bacilli intravenously. Following an inoculation of his patients with tertian malaria he allowed them to have from six to eight paroxysms.

Since Wagner-Jauregg started his work a number of observers here and abroad have treated large series of general paralytics by this method. There is now a voluminous literature on this subject.

After much work on rat trypanosomiasis treated with tryparsamid (a pentavalent arsenical derived from atoxyl) Wade Brown and his co-workers of the Rockefeller Institute suggested the use of this drug to Lorenz and Loevenhart in cases of syphilis of the nervous system. In 1923 Lorenz and Loevenhart presented a report of the use of tryparsamid in a series of patients suffering from paresis, tabes dorsalis, and meningovascular syphilis. Since this report a tremendous literature on the treatment of paresis with tryparsamid has appeared.

From these brief introductory remarks it is evident that recently the treatment of syphilis of the nervous system has received a great impetus and has been tremendously energized by the treatment of general paralysis. Although there are undoubted hazards associated with the newer methods of handling general paralysis, the results obtained fully warrant their use. Care must be exercised in administering tryparsamid in order to avoid the amblyopias. In the use of malarial inoculations the hazards are those associated with mortality rather than with injury to any particular system of the body.

Syphilis of the nervous system has been conveniently divided into the parenchymatous and meningovascular types. It is convenient to follow this grouping in considering the treatment of the various forms of nerve syphilis.

Meningovascular syphilis may well be divided into two subgroups: (1) Acute syphilitic meningitis, and (2) the much more frequent chronic type of reaction. On the whole the meningovascular syphilis responds fairly well to the various types of treatment.

In a group of some fourteen cases of acute syphilitic meningitis observed in the past eight years we handled these cases conservatively as regards specific arsenical therapy. These patients have been subject-

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

ed to frequent lumbar taps and some form of mercury has been used to tolerance of the patient. Usually, the bichlorid or succinimid has been used intramuscularly two or three times a week. In this group of cases, which on the whole have occurred within eight months of the initial infection and had received intensive arsenical treatment, we have withheld the arsenicals during the acute stage of the reaction, while there has been a marked cellular response on the part of the nervous system, as evidenced by the spinal fluid findings. On recession of the eye ground changes and decrease in the cellular responses these patients have been given neosalvarsan intravenously at weekly intervals. This group of patients improve to a remarkable degree clinically, but serologically are extremely resistant. At least two of the series of fourteen cases have had adequate treatment at intervals now for seven years and persist in a positive blood Wassermann.

In the chronic form of meningovascular syphilis are achieved the greatest therapeutic results. These cases respond very well to almost any kind of specific therapy, so extreme care must be exercised in making claims for the various methods of handling such cases.

A series of over 200 cases of this type of neurosyphilis has been treated at Barnes Hospital and Washington University within the past five years by a combined course of tryparsamid, neosalvarsan and mercury. This group has done extremely well, both clinically and serologically; on the other hand, had it not been desired to use tryparsamid but to have treated these patients with neosalvarsan and mercury, as was previously the custom, our results might have been just as satisfactory.

This group, however, has been much more closely studied and more frequently hospitalized to check up on the serology, as all such cases have been treated by the Neurological Department. Formerly, treatment was recommended by the Neurological Department but carried out by the Dermatological Department. This we believe to have been a serious handicap in determining duration of treatment, status of the nervous system, etc. Since under the Dermatological Department a large number of early syphilitics were naturally handled, our cases tended to become just syphilitics and no doubt the neurological phases were frequently lost sight of.

Parenchymatous syphilis, i. e., tabes dorsalis and general paralysis, present the

greatest therapeutic problems. The treatment of tabes dorsalis is frequently one of the most difficult problems the neurologist is called upon to handle. Naturally, the cases that are first seen after profound changes have presumably taken place in the posterior columns of the spinal cord offer a very poor prognosis. Even in this group of patients tryparsamid has a very definite therapeutic place, doing more good in our experience than the other arsenicals. Such cases must be carefully studied to determine the amount of damage already present in the optic nerve, as it is well known that there are frequently associated with posterior column degeneration degenerative changes in the optic pathways with the development of a primary optic atrophy. When tryparsamid was first recommended and used in the treatment of neurosyphilis, those cases showing any sign of optic nerve defect, either a neuroretinitis or optic atrophy, were considered unsuitable for tryparsamid therapy. At the present time, however, these cases are treated with tryparsamid using somewhat smaller dosage and at less frequent intervals. If such cases are frequently studied from the ophthalmological point of view,—careful fundus examination, close check of visual acuity and visual fields, with due attention to the subjective complaints of the patients,—few visual disasters will occur.

The tabetic is definitely improved in the majority of cases by the use of tryparsamid. Gait and ataxia are little affected by specific treatment. The shooting or lancinating pains are much improved. Of all the symptoms complained of by the tabetic the incontinence and dribbling of urine has been most strikingly benefited in many of the cases. The eye ground findings in the cases of atrophy tend to remain stationary, with a subjective improvement in vision a not uncommon occurrence.

From the point of view of comfort of the patient and apparently of slowing up or arresting the tabetic degeneration, tryparsamid combined with some form of mercury has seemed to give more satisfactory results than other forms of treatment used by us.

Aside from specific treatment of tabes dorsalis, other measures very worth while are those tending toward the reeducation of the tabetic. Of course, if the posterior column tracts have been completely wiped out by the degenerative process, so that no sensory impulses of position, etc., are able to pass, little will be accomplished. Since

there is no absolute measure of how many sensory impulses are getting through, all patients should be given the benefit of a trial with coordinative reeducation. Vision is extremely important in this work and if we have not only an ataxic tabetic but a blind one no headway will be made. Marked hypotonia also makes for difficulty in carrying out coordinating exercises.

General paralysis of the insane or paresis despite our advances remains a difficult therapeutic problem. Many factors entering into the care of this disease tend to confuse the picture. In the first place, the accuracy of this diagnosis must be constantly questioned despite the great commonness of the clinical picture. In the second place, the tendency of this disease to show spontaneously periods of remission with at least apparent clinical and social health.

From a survey of the literature on the treatment of paresis with malaria or with tryparsamid, it is obvious that the results from the point of view of remissions and clinical improvement show very much the same percentage of improvements. We find enthusiastic supporters of each type of treatment; yet there is as yet no cure for paresis and fortunately but few claims of cure are made. Under both regimes of therapy there occur startling remissions with the return of the patient to his former social-economic position; striking changes in the serology of the blood and the spinal fluid with a tendency to the flattening out of the paretic colloidal gold curve.

The original work was done in Europe, where probably now the majority of cases treated with malarial inoculation is being done. Tryparsamid and its uses seem to be practically unknown to the Continental school of observers. Wagner-Jauregg, Gerstmann, and others have now treated 2,000 cases of paresis with malaria. The malaria itself is not supposed to have any specific effect on paresis but is only the means of producing over a period of time definite rises in temperature. How this rise in temperature causes changes in the pathological process with amelioration of symptoms is unknown. Many other substances have been used to produce temperature reactions; namely, proteoses, typhoid vaccine, horse serum, etc.

It is essential that the patient subjected to malaria therapy should be in a hospital and at rest. It is important that the cardiovascular system be carefully followed on account of the always imminent danger of collapse and death.

A fairly conservative estimate of mortality under conditions of this treatment gathered from the literature is somewhere in the neighborhood of 10 per cent, with a fairly wide fluctuation in various series. Even with marked improvement in the cases so treated there is great difficulty in properly evaluating the results. The spinal fluid changes caused by therapy of paresis are quite inconstant in that there may or may not be diminution in the cellular response. The Wassermann reaction may or may not become negative. Of all the tests routinely performed on spinal fluids the Lange colloidal gold curve shows the least change under any form of therapy,—usually persisting in its paretic character.

A number of brains from patients suffering with paresis, who had received malaria therapy, have been studied. The opinion generally expressed by various observers is that the process has been favorably affected inasmuch as the pathological picture presented is that of stationary paresis. The beneficial influence of malaria therapy is primarily exhibited in its effect on the inflammatory reaction. The pathological changes following fever therapy consist in a reduction in the exudate and in the number of new blood-vessels. A claim that there is transformation of the paretic process into that of cerebral syphilis is not justifiable.

As has been mentioned, since the appearance of Lorenz and Loevenhart's work in 1923, tryparsamid has been very generally used in the treatment of paresis.

On starting a patient on a course of tryparsamid,—which varies frequently and probably preferably is a combined course of tryparsamid, neosalvarsan and mercury,—it is important to make a careful study of the visual apparatus. It is advisable to inform the patient or relatives about the visual disturbances which may arise and to caution the patient to inform the examiners of any apparent changes in vision, such as haziness, transient blurring, etc. This caution has not tended to increase the visual disturbance complained of, so the element of suggestion may be considered a negligible one.

Some of the earlier reports of the use of tryparsamid in general paresis have proved to be over enthusiastic, but as the material piles up it seems that the percentage of remissions is in the neighborhood of 35 per cent. You will note this is approximately the same percentage of remissions as occurs following malarial treatment.

The visual disturbances are much decreased if the dosage of tryparsamid is kept lower than that which is usually recommended. If the average dosage is between 1.5 and 2.0 gm. instead of the usual dosage of 3.0 gm. or more the number of visual complaints is tremendously decreased, and when they occur are quick to show recovery on stopping the administration of the drug. The course of tryparsamid injections given at weekly intervals averages about six. When neosalvarsan is used in conjunction with tryparsamid the course usually extends over a period of eight weeks. The tryparsamid is given on alternate weeks.

In malaria and tryparsamid we have two agencies which favorably influence the course of paresis in a certain percentage of cases. In those cases in which there has occurred profound changes in the brain structures it is too much to expect material benefit. Unfortunately, from a clinical and serological point of view, there is no definite way to predict how serious the damage to the central nervous system is. In paresis, when there has taken place a profound structural change in the brain, neither malaria nor tryparsamid nor the more common arsenicals can be expected to influence the course of the disease to any appreciable extent.

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DISCUSSION

DR. G. WILSE ROBINSON, Kansas City: I am much interested in this subject and the Doctor's method of handling it. I have been treating these conditions for quite a while and have some rather fixed ideas. One is that the best method today in the treatment of paresis or tabes is intraspinal injection of salvarsanized serum, the old Swift-Ellis method. I have been using it since 1914, and I have one patient that I gave this treatment in 1914 who has never had any difficulty since.

I would like to mention two patients that came to me with tabes and a psychosis simulating paresis. One was a mail carrier from Oklahoma. His Romberg was of such extreme character that when his eyes were closed he tumbled to the ground. The other could not walk at all. I had treated him at the office with these intravenous injections. He had incontinence of urine and was mentally bad. I treated these patients according to the Swift-Ellis method, and when I got through with them the mail carrier went over to Illinois on a visit and drove back and has been to Kansas City to see me. He is now carrying the rural mail driving an automobile. I have a moving picture of him with his feet together and eyes closed and he is as steady as any man in the room. His mental symptoms cleared up and for more than two years he has been carrying mail. The other man today is operating a business in Kansas City. His Romberg disappeared entirely. I have moving pictures of him also with his feet together and eyes closed and his station is steady.

These are some of the results I have been securing from the Swift-Ellis method. I have given more than 2,000 injections without any casualty whatever. I have never had a bad result. I have had irritation locally in some cases, but good results. I believe it is the method of treatment. I believe tryparsamid is good in some cases. Before beginning this method of treatment we never saw a case of paresis with a long intermission. Rarely was the man able to return to his occupation. One case I had of a railroad man, he has letters from his superintendent commending him for the efficiency of his service, and if ever I saw a case of paresis he was one.

DR. RALPH L. THOMPSON, St. Louis: I would like to ask whether Dr. Robinson uses the straight Swift-Ellis method.

DR. ROBINSON: The original formula was 10 cc. of blood serum to 20 cc. of normal saline. I use 15 cc. of each. I give in the meantime to all cases of neurosyphilis, mercury intravenously.

DR. E. T. GIBSON, Kansas City: I like to think of these cases of parenchymatous syphilis as having two kinds of symptoms. It is like a prairie fire, there is the burned grass and the burning grass. The symptoms that represent the reaction, the irritating part, are to a certain degree amenable to treatment. The damage that has already occurred, as Dr. Carr has pointed out, can be corrected only by reeducation, and that to a limited extent.

Dr. Carr spoke of the fact that the absolute diagnosis of paresis is not easy. I believe that is true. It is easy to know that you are dealing with a case of syphilis or neurosyphilis of some type, but to be absolutely sure of paresis is difficult. You cannot be absolutely sure until you have the tissue under the microscope.

With regard to malaria treatment, one man's experience is hardly enough to lead him to speak very dogmatically about anything. When it is possible to have a serious discussion of the merits of various forms of treatment in a condition like this it leads one to think there is merit in all of them. I have had the best results in paresis by the use of malaria, and it has not been very dangerous. I have been very cautious in the patients to whom I gave malaria in satisfying myself that they were in good physical condition. I am told by men who have been at the Wagner-Jauregg clinic that the workers are even more enthusiastic over malaria than their reports indicate.

DR. A. D. CARR, closing: I would like to remark in regard to the use of the Swift-Ellis method of treatment, with its various modifications, that now and again we do get very brilliant results, but in our experience when we used a fortified serum in the treatment of such cases we were unfortunate enough to have some unpleasant experiences, such as a transverse myelitis. One or two such reactions make one loath to continue the use of this method of treatment.

As regards malaria treatment as now used by the Wagner-Jauregg clinic, the patients are not allowed to continue paroxysms for a long period of time. The malaria is stopped following the third paroxysm. The patient is given a rest and then again inoculated with malaria. We are treating a series of cases with malaria at the present time, and although we believe that tryparsamid gives the better results in the treatment of tabes and paresis, we feel that we must run through a series with malaria therapy, carefully watching such patients. As the disease is very easily stopped by quinin we may not have disasters that have been reported, such as Dr. Gibson noted.

A PHYSIOLOGICAL METHOD OF TREATMENT OF ACCIDENTAL WOUNDS*

WALTER R. HEWITT, M.D.

ST. LOUIS

The simple incised, lacerated or punctured wound is so frequently encountered that a simple method of treatment is desirable. Any procedure that will yield excellent results as well as remove the fear of suturing merits a test by the profession. It is with these thoughts in mind that a physiological method is proposed.

In order to avoid the meddlesome home treatment so often productive of infection, I advise applying a first aid packet, or a piece of sterile cotton, directly over the wound, fixing it securely in place by a bandage. At the same time this effectually controls bleeding until the patient comes under your care.

PRELIMINARY PREPARATION OF WOUND REGION

Remove the dressing, as well as any hair that may surround the wound. Expedition removal of hair, if present, may be accomplished with a sharp razor, previously sterilized in alcohol, taking due care that debris is never carried into the wound. Crosswise shaving should be avoided as the easiest way of preventing wound contamination. If parallel shaving will not give a clean field, then it becomes imperative that a pledget of cotton wrung out of sterile saline solution be tucked into the wound for protection and removed when the shave is finished. The moist cotton will frequently save dragging hair into the wound.

Grease, when present should be removed with ether, by parallel wiping, taking such precautions as are necessary to protect the eyes and prevent a fire hazard.

Nature prevents infection mechanically by hemorrhage and biologically by phagocytosis. Blood washes out the wound carrying away a certain amount of foreign matter, including bacteria. Then, too, the blood contains certain antibodies which kill bacteria, and the leukocytes finish the job by engulfing and digesting them. Nature repairs a wound by bathing the injured tissues with serum which contains cell food and leukocytes which digest and absorb badly damaged tissues. On this basis, whatever chemical disinfection may be required is well taken care of by the leukocytes. The entire plan of this treatment aims at *prevention of infection* or at least *minimal dosage*, which the forces of nature adequately take care of.

If an antiseptic is desired, parallel wiping of the wound margins with 70 per cent alcohol may be used. Saline or boric acid solutions have yielded as good results in my own hands. Every one knows that wounds contaminated with concrete or lime heal as infected wounds and hence no attempt at suturing should be made. Every instrument and aqueous solution used must be thoroughly sterilized and boiling seems most convenient. The hands are carefully washed with soap and water again. Gloved hands do not seem to be essential, though desirable.

FINAL PREPARATION OF WOUND

With tiny pledgets of cotton wrung out of normal saline, clots are sponged out and any visible foreign matter removed. As soon as a dry clean wound is secured you are ready to apply your anesthetic.

By chance, one day, I dissolved a one grain tablet of novocain, devised by Prof. Bransford Lewis, of St. Louis, with a drop of normal saline in a very dirty wound on the face, after the preliminary cleansing outlined above, and shortly afterwards inserted painlessly four or five interrupted sutures so as to approximate the wound margins. The patient was astonished that he did not feel the prick of the needle but so was I when the wound healed per primam, even though a tablet of doubtful sterility had been used. I must confess that prior to suturing this wound, for more than a year I had used Dr. Lewis' very soluble novocain tablets in the painless treatment of all solitary furuncles, as well as a wide variety of questionably infected wounds, i. e., punctured nail wounds, removal of embedded fish-hooks, superficial laceration of perineum (1 case), and was aware that sufficient anesthesia could be obtained in this manner. Outside of the furuncles, I was agreeably surprised to find that all of the above healed as clean wounds. (Culture of tablets did not yield any growth.)

Novocain crystals in sealed ampoules, lately, has been the anesthetic of choice, (a 120 mgm. amp. = 2 grs. or 200 mgm. = 3 grs.) because it is the least toxic, has no irritating qualities, even in concentrated strength (20 per cent), and because it does not cause vasoconstriction or vasodilatation when suprarenin is omitted, and it leaves no after effects upon the tissues. In brief, it is practically devoid of danger even if freely used when the essayist's technic is followed. I therefore accidentally had discovered a use for novocain which I had longed for many times.

TECHNIC OF APPLICATION OF ANESTHETIC

After the usual ampoule sterilization, shake

* Read before the St. Louis Medical Society, April 23, 1929.

some of the novocain crystals or apply a tablet into the widely gapping wound, and apply a drop of saline and gently smear the walls of the wound; then gently approximate with your fingers the wound margins. Retain in this manner, occasionally rubbing the excess of anesthetic over the walls of the wound with an instrument. Within five minutes anesthesia is sufficient for closure of the ordinary wound.

In one case I carried out a limited debridement. However, the penetration of the anesthetic has not so far permitted wide placing of sutures. Drainage has been avoided as the serum readily escapes without it. In punctured wounds, where I feared infection, a tiny tooth forceps placed the anesthetic into the wound depths and enlargement of the entrance then made without pain.

SUTURE MATERIAL

Colored suture materials may be seen more easily and therefore quickly freed and readily snipped with a Stevens tenotomy scissors. A fine hook often is of great help in removing delicate threads when embedded in hardened serum or crust. Equisitine, silk, horsehair, black silk-wormgut and dermal suture, are desirable from the above viewpoint.

DRESSING

After the sterile gauze dressing has been applied a duo-adhesive patch very effectually retains most dressings in place. A change of dressing ordinarily is not had for 48 hours.

It is almost needless to say that due regard should be had for ordinary surgical principles, such as splinting and antitetanic serum, when necessary.

The above method has been so uniformly satisfactory to the essayist that he ventures the opinion that its widespread general use will do much to remove the fear of suturing—now all too prevalent in the public mind. An additional asset is its adaptability even where an anesthetic is not accessible or help obtainable. It has some limitations, for instance, the penetrability is moderate, and the method presupposes fine sharp needles and average technique.

While novocain solution applied to open wounds has been held to be mildly anesthetic, several leading chemical companies concede that I have used it in a unique manner which in the concentrated strength employed affords sufficient anesthesia to permit suturing of wound margins, and so far as they are aware no one has employed this method heretofore. Children particularly never murmur; as one fond parent expressed it, "Never bat an eye."

825 Metropolitan Building.

WASHINGTON UNIVERSITY CLINICS

SYMMETRICAL THINNESS OF THE PARIETAL BONES

SHERWOOD MOORE, M.D.

From the Mallinckrodt Radiological Institute.
Presented at the Friday Morning Clinical Conference.

Irregularities in the contour of the skull may be due to syphilis, tumors, trauma and a variety of other conditions. One of the most uncommon causes is illustrated by the following patient who entered the hospital for an entirely unrelated condition. The depressions in her skull were discovered accidentally and were not diagnosed until the X-ray had betrayed the strikingly symmetrical character of the lesions.

A white laundress, aged 63, entered Barnes Hospital because of infestation with tapeworm, evidence of which had persisted for five years. Her complaints were weakness, nervousness, dyspnea and capricious appetite. This condition was successfully treated. Her family history was significant. She had three sisters and one brother, all of whom were mentally deficient. She married young and had five children, only one of whom survived. She had one miscarriage.

The examination revealed a pathological gallbladder but nothing else of consequence excepting the presence of two depressions, somewhat spoon-



Fig. 1. Anteroposterior view of skull. Note the rarefied areas in each parietal bone, symmetrically placed in relationship to the midline. Also note that in the rarefied areas only the inner table of the skull is present, the outer table and diploë being absent.



Fig. 2. Lateral view of Fig. 1, confirming the findings on anteroposterior view.

shaped, palpated in each parietal bone. These were quite symmetrical in regard to position, size, shape and depth, and were readily felt through the hair. The bottom of each had a strong foundation of bone. The edges were smooth, regular and not elevated. Examination of the remainder of the skeleton revealed nothing abnormal. Wassermann and Kahn reactions were negative.

The patient gave an unreliable history that the condition of the skull had begun twelve years before, immediately following the menopause when she noted a slight depression in the right parietal bone. At that time and during the next year she suffered from severe headaches which gradually disappeared. Involvement of the left parietal bone followed and the condition gradually developed on both sides.

The depressions were surprisingly noticeable to the examining finger and their characteristics were better realized by this method of examination than in the radiographs. The stereoscopic films of the skull from either side showed a calvarium generally slightly thickened. In the posterosuperior portion of each parietal bone there was an ovoid area in which there was an absence of the outer table and diploë for a distance of about 4 cm. from before backward, and something like half this distance laterally. The appearance of the bone was unlike that accompanying loss of substance from infectious processes, from tumor, trauma or any of the essential diseases of bone. The surrounding bone was perfectly normal and there was only the inner table of the skull at the bottom of the depressions.

Undoubtedly this patient has the condition known as symmetrical thinness of the parietal bones, the latest and most complete study of which has been made by Greig¹ who reported observations on the dried calvaria of eleven cases. The deformity has given rise to a fairly extensive literature, an excellent bibliog-

raphy of which is attached to Greig's article. There are two views as to the origin of symmetrical thinness of the parietal bones, the older one holding that it is a manifestation of bone atrophy occurring with advancing age and analogous to the atrophy of the maxillae in elderly people. The other, held chiefly by later writers, is that it is of congenital origin. Greig considers that there is a defect of development of the diploë which only becomes manifest later in the evolution of the bones of the skull. He quotes a case of Plattner, in the history of which it was stated that the patient was known to have had the depressions in the head since childhood.

The condition has attracted more attention among anatomists than among clinicians. Anatomically, it is not extraordinary for Elliott Smith and Wood Jones found seven examples in 10,000 skeletons. Carriere is said to have seen it four times in 1,000 skulls. Clinically, however, it is seldom recognized probably because it presents no symptoms. Greig also points out that although it may be congenital it is not discoverable in infancy because at that period the diploë is nonexistent. In adolescents and young adults it is not obtrusive because of the thickness of the hair. This may help to explain not only its clinical rarity but also why it has been most frequently observed in the middle-aged and the senile.

Greig is of the opinion that "observations on the living are untrustworthy" and states further that radiography is of doubtful value in determining the existence of the anomaly. Fig. 1 and Fig. 2 indicate that in our case the condition may be shown quite satisfactorily by X-ray examination. The findings differ radically from any other condition found in the bones of the skull. It is true that somewhat similar areas, smaller in size, are not infrequently observed in lateral radiographs of the skull. They are however usually at the site of the anterior fontanel. Moreover, they differ from the findings observed in the case under consideration in that, though there is an absence of diploë, both tables of the skull are present. In symmetrical thinness the tables converge and fuse into each other forming a single layer of compact bone and producing a condition identical with that best seen in the posterior fossa where the squamous portion of the occipital bone contains no diploë. These small areas frequently give rise to difficulty in the diagnosis of the lesions of the skull secondary to the presence of pathological intracranial conditions, for example, tumor. They should not be confused with symmetrical thinness of the parietal bones.

1. Greig, David M.: Symmetrical Thinness of the Parietal Bones, *Edinburgh M. J.* 33:645 (November) 1926.

ONYCEPHALY

ARCHIE D. CARR, M.D.

From the Neurological and Medical Services of Barnes Hospital.

Presented at the Friday Morning Clinical Conference.

Like other cranial malformations and deformities oxycephaly is always obtrusive. Because of its rarity however it is perhaps less generally recognized and has received in medical literature less attention than the striking character of its clinical features would seem to deserve. In its fully developed form it produces an exophthalmos of a peculiar type and of a degree which rivals the most extreme proptosis of exophthalmic goiter. It may also cause severe headache, impairment of vision, divergent strabismus and symptoms of cerebral compression, resulting in advanced grades of convolutional atrophy of the skull.

An excellent and comprehensive review has recently been written in Edinburgh by Greig¹ who, to prevent confusion with other similar but unrelated conditions, carefully defines oxycephaly. From an anatomical standpoint he wishes to limit it entirely to a "congenital malformation associated with synostosis" a general premature closure of the sutures of all the bones of the cranium and face. This closure may be complete and recognizable at birth and be accompanied by webbed fingers and toes or other deformities of the extremities (true oxycephaly), or it may appear as a general synostosis in early childhood but without as-

sociated deformities of the extremities (delayed oxycephaly). If we accept Greig's definition it is likely that many cases in the literature described as oxycephaly will have to be reclassified.

The following case, which presents the clinical features and the anatomic criteria demanded by Greig, came to the Jewish Hospital because of earache. He was referred to me only because of his peculiar appearance.

Case 1. A boy, aged nine, in the third year of elementary school doing satisfactory work. He was born at full term. Labor was prolonged but did not require instrumental aid. At birth he weighed 5½ pounds. At six months he had two teeth. He did not walk or talk however until about the seventeenth month. The father, aged 35, is well and the mother, aged 32, is in good health. There is one other child, a boy aged 6, who shows no abnormalities. The paternal grandfather resembles the



Fig. 1. Profile of Case 1 showing absence of superciliary ridges and flattened glabella.



Fig. 2. Front view of Case 1. Showing facial asymmetry, shape of head and peculiar standing position.



Fig. 3. Hands of Case 1 showing syndactyly of second and third fingers and deformity of small fingers.

patient in his appearance and the general shape of his head but does not have symptoms which can be referred to a condition of oxycephaly.

Aside from measles, mumps and pertussis, the child has been well. He has grown very slowly. He sleeps well but there is nocturnal enuresis. According to his mother's account his eyes have always been defective, requiring glasses for hyperopia, and the deformity of the head has been present since birth.

He is a fairly alert looking boy with notably good color. His face has a strange and worried expression suggesting that of a much older person. Analysis shows that this is derived from many slight abnormalities in anatomical configuration. There is a tendency toward frowning. The left eyeball tends to take the fixed position toward the inner side of the orbit. The right is more centrally located. The left eye seems slightly protruded as contrasted with the right. Lateral nystagmus is present in both directions. The whole of the left side of the face is foreshortened and more prominent. The nose is long and broad and springs from a flattened glabellar space between the eyebrows. The teeth are irregularly developed and widely separated. The palatal arch is high and narrow. The lower half of the face is much more normal in appearance than the upper and more in conformity with that of an average child of nine years.

The position of the head is slightly forward on the shoulders with a tendency to fixed positions and immobility. Movements are slow and deliberate, suggestive of the slowing seen in residual enceph-



Fig. 4. Feet of Case 1 showing syndactyly of toes.



Fig. 5. Anteroposterior view of skull of Case 1 showing marked convolutional atrophy.

alitis. There is however no rigidity or spasticity of any muscle group. The second and third fingers of each hand are webbed and there is a malformation of the small fingers. Webbing between the first and second toes is also apparent.

General physical examination reveals no defects.



Fig. 6. Lateral view of skull of Case 1 showing short anteroposterior diameter, absence of all sutures, absence of frontal sinuses. Rudimentary maxillary antra. Marked convolutional atrophy.

There is an old perforation of the right ear drum with no evidence of recent activity in the ear. No paralysis, abnormal reflexes, or other signs, are apparent in the neurological examination. Ophthalmological examination is negative. There is, however, a high degree of hyperopia (about 6 diopters). The speech is slow, monotonous but not defective.

X-ray studies of the skull show extraordinary changes. In the lateral view the skull is seen to be extremely high, the squamous portion of the frontal bone being almost vertical and extending to the vertex of the skull which lies just anterior to the bregma. An extreme degree of convolutional marking is present throughout the entire calvarium which is somewhat thin. The sella turcica is distorted. There is apparently complete fusion of the bones in the base of the skull. The middle fossa appears markedly depressed and approaches almost to the level of the posterior. The dorsum sella appears to have been markedly displaced downward and backward. The orbital cavities appear decreased in depth and also in height. The orbital plate of the frontal bone approaches the vertical plane. Neither the sagittal nor the lambdoid sutures are visualized in the lateral view. The frontal sinuses are not developed. In the anteroposterior and posteroanterior views there is seen to be complete fusion of all the sutures of the skull. The maxillary antra are rudimentary. There is markedly irregular distribution of the teeth in the maxilla. The mandible is of normal size but the teeth appear abnormally placed.

This case presents a fairly complete picture of oxycephaly. The skull shows the characteristic shape. All suture lines are closed. The degree of convolutional atrophy is extraordinary. There is nystagmus and hyperopia and a tendency to strabismus. Furthermore, the skull changes are accompanied by syndactyly of both hands and feet, malformations occurring so often in cases of oxycephaly that the association can scarcely be accidental. The deformity of the little fingers, striking in this case, has been less frequently described.

There is no definite exophthalmos. While this may be one of the most striking features of oxycephaly, it is by no means a constant finding occurring perhaps in not more than half of the published cases. It may be absent in some of the most pronounced steep skulls and present in cases with moderate deformity.

There can be no question concerning the congenital character of oxycephaly. The hereditary influence however has not been so clearly established. It may be said that the majority of the cases in the literature have been isolated examples in families in which no similar tendency was recorded. Exceptions, however, are by no means uncommon and have been reviewed by Greig.¹ In our cases the father and mother show no oxycephaly. The paternal grandfather resembles the patient remarkably. The flattened high forehead is notable in Fig. 7. There is also the appearance of a considerable exophthalmos.



Fig. 7. Grandfather of Case 1. Showing resemblance in contour of head and exophthalmos.

The hereditary tendency and the exophthalmos are more apparent in another case which has been seen for several years in our clinic.

Case 2. Child, aged nine, colored, of particular interest as she is the daughter of the case reported by Dock² in 1919. The mother had exophthalmos, convolutional atrophy of the skull, headache and impaired vision. Because of these symptoms Dr. Ernest Sachs performed a decompression operation with considerable subjective relief and improve-



Fig. 8. Case 2 with her mother who was reported by Dock in 1919. (Photograph in spring of 1929.)

ment in the patient's health. Since that time she has been under occasional observation in the Washington University Dispensary. In 1919 she married and a year later gave birth to this child. In both patients there is exophthalmos. (Fig. 8.) The configuration of the head of the child is somewhat obscured by the hair and is more apparent in the X-rays. In the first X-ray taken in 1922, the sin-



Fig. 9. Lateral view of skull of Case 2 at age of 2 years, showing absence of suture lines and convolutional atrophy.

ciput is prominent (Fig. 9). There is an upward bulging at the site of the anterior fontanel. No suture line is observed. There is convolutional atrophy throughout, but more prominent in the posterior portion of the skull. The size of the sella is within normal limits. The bones of the face above the mandible are poorly developed, the lower jaw and chin being more prominent than the remainder of the bones.



Fig. 10. Lateral view of skull of Case 2 at age of 9 years, showing increase in convolutional atrophy.

The second X-ray (Fig. 10), taken in May, 1929, revealed changes, with the modifications that would be anticipated from increase in age, as observed in the first examination. In addition the sinciput is more prominent. No suture lines are observed, and there is a distinct enlargement of the sella. The convolutional atrophy is much more intense. There is still relative lack of development of the bones of the face.

It is interesting that Greig in commenting on Dock's case expressed doubt that it was an example of true oxycephaly. It seems possible that this opinion was formed because of the comparatively poor reproduction of the X-ray of the skull in Dock's publication. A later careful analysis of this X-ray by Dr. Sherwood Moore shows it to be entirely without suture lines and of a shape corresponding closely to other cases of undoubted oxycephaly.

Neither mother nor daughter shows syndactyly of hands or feet. It is worthy of note however that the child has a definite deformity of the feet which is shown in Fig. 11. Analysis of this deformity is hardly justifiable in the absence of X-ray studies which were refused by the mother. It is obvious however that there is swelling over both internal malleoli and that the feet are flat.

When noted at birth or in early childhood, the congenital character of the synostoses of oxycephaly is easy to establish. Cases which are first observed in later life may be subject



Fig. 11. Feet of Case 2 showing congenital deformity with swelling over both internal malleoli and pes planus.

to doubt. Malformations of the skull and abnormal fusion of bones may without question arise from known diseases and extraneous causes. To such of these cases as resemble steeple skull Greig has given the name of "false oxycephaly." Whether the two following cases can be included, according to Greig's criteria, in the class of true oxycephaly may be subject to question. They are presented because of their striking appearance and the exophthalmos.

Case 3. Man, colored, aged 39. The queer shape of the skull was noted during the course of examination to determine the status of syphilis for which he had been receiving treatment. The patient has been blind since 3 years of age. The blindness was attributed to measles. The striking configuration of the skull can be seen in Figs. 12 and 13. The eyes are somewhat prominent and ophthalmoscopic examination shows a primary optic atrophy. X-ray studies of the skull show a great increase in the size of the face with marked prognathism of the jaw (Fig. 14). The skull is small. The coronal and lambdoid sutures are closed. There is a slight degree of convolutional atrophy. The floor of the middle fossa is much depressed and the roofs of the orbits approach the vertical. The frontal sinuses are well developed.



Fig. 12. Photograph of Case 3 showing slight exophthalmos and steeple skull.

The most striking feature of this case is the general cranial configuration. This is very likely accentuated by the marked prognathism



Fig. 13. Profile of Case 3 showing marked prognathism and high vertical forehead.

of the jaw. There is closure of the sutures and slight evidence of increased intracranial pressure. The glabella is however well formed as are the frontal sinuses.

The etiology of the primary optic atrophy is somewhat obscure, and it is impossible to say whether it is a residual from measles or syphilis or a result of the cranial deformity.

Case 4. Female, colored, aged 38, referred to the



Fig. 14. X-ray of skull of Case 3.

hospital for study because of the extraordinary degree of her exophthalmos which has been present for at least four years (Fig. 15).



Fig. 15. Photograph of Case 4 showing exophthalmos and peculiar facial appearance.

The configuration of her head is striking with a tendency to steeple or tower formation, especially notable in Fig. 16. The eyes are widely spread as well as exophthalmic. There is an inconstant lidlag. The nose suggests the saddle type. The heart is enlarged and decompensated, with a double murmur, best heard over the aortic area. Blood-pressure, 210 systolic, 95 diastolic. The thyroid is not enlarged. There is no tremor or tachycardia. The basal metabolism is normal.



Fig. 16. Profile of Case 4.



Fig. 17. X-ray of skull of Case 4.

X-ray studies show a short skull with a deep vertical dimension (Fig. 17). The lower jaw is prominent, the remainder of the face is poorly developed. The orbits are shallow. The sella is enlarged and depressed into the sphenoid. The calvarium is thick throughout. No suture lines are visualized. The frontal sinuses are rudimentary.

The outstanding feature in this case is the striking exophthalmos. Although the appearance of tower skull is no doubt exaggerated by the dressing of the hair, the general shape of the head with its rudimentary sinuses and the synostosis of all its sutures place it in the oxycephalic group.

Although in an adult patient without syndactyly the congenital character of oxycephaly may not be apparent, there should seldom be any difficulty in the diagnosis of the condition itself. The exophthalmos may be confused with that of Graves' disease, but the absence of the characteristic signs of thyrotoxicosis should serve to differentiate it. In oxycephaly, moreover, the lidlag is usually absent and there tends to be a somewhat sleepy, heavy lidded appearance which is in sharp contrast to the alert stare of exophthalmic goiter. In some cases the headache, the visual disturbance and the convolutional atrophy combine to produce a picture which may be confused with brain tumor. The impaired vision in oxycephaly often becomes a serious feature which demands prompt recognition and occasionally, as in Dock's case, requires cerebral decompression.

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THE JOURNAL

OF THE

Missouri State Medical Association

AUGUST, 1929

EDITORIALS

THE PORTLAND SESSION OF THE

A. M. A.

The Portland session of the American Medical Association, held July 8-12, was in every respect a successful meeting. The scientific program included many papers recording the advance in treatment of stubborn conditions and the refinements of therapy based upon research and experimentation. Anemia's conquest by using liver extracts, healthier babies by the clearer perception of appropriate diets, additional reports on the malarial treatment of paresis, the always present cancer problem, are some of the topics that attracted unusual attention.

The "blindfold test" of picking a brand of cigarettes received a hard jolt from Dr. Emil Bogen, of Cincinnati, who told the Section on Pharmacology and Therapeutics that it could not be done. He gave the test to a mixed group—professional men, university students and laborers, all smokers for more than three years, using an average of one package a day each—and none was able to distinguish the brands. One man, indeed, an exceptional smoker, Dr. Bogen said, with discriminating senses, did succeed in naming the brand in some cases.

A number of Missouri physicians were scheduled to read papers in the different sections.

The address of President Thayer to the House of Delegates was a scholarly and appreciative expression of his observations of the unselfish and harmonious spirit manifested by all the members of the organization.

President-Elect M. L. Harris in his address to the House of Delegates reviewed his plan, already published, for county societies to incorporate and form a medical center with headquarters properly equipped for the diagnosis and treatment of all varieties of ambulant patients, these patients to be charged a fee depending upon their financial status. Patients who are unable to pay are to be regarded as charges on the community and the community assessed at rates to be agreed upon. Patients who are able to pay the regular fees are not to be treated at the medical center.

The House of Delegates conducted the busi-

ness affairs of the Association with the dignity and celerity so characteristic of this body. One very important question came before the House when Dr. William Allen Pusey, Chicago, introduced a resolution requesting the Judicial Council to present to the House of Delegates at the 1930 session a comprehensive statement concerning the practice of medicine by corporations, by clinics, by philanthropic organizations, by industrial organizations, by demonstrations and by similar organizations, and concerning the relationship of physicians thereto. The importance of this resolution induced the House to discuss it in executive session at this meeting. Following the executive session, the House adopted the report of the Reference Committee which approved the resolution. The question will be considered by the Judicial Council and report made at the Detroit session in 1930.

Dr. E. J. Goodwin, St. Louis, delegate from Missouri, introduced the following resolution:

At the annual meeting of the Missouri State Medical Association at Springfield last May the retiring president, Dr. Frank I. Ridge, of Kansas City, in his message to the House of Delegates recommended that medical schools be encouraged to arrange for periods of practical experience for students between the second and third years and between the third and fourth years. This practical experience, he suggests, can be provided by apprenticing the students during the summer vacation to practitioners of high standing, preferably in rural communities. He endorsed the one year internship in a hospital and thought a second year would be beneficial. This second year, he proposed could be obtained by the apprenticeship mentioned.

By such an arrangement the medical students and newly graduated physicians will know something about contact with the people they must handle and learn how to treat disease by actual contact with the patients in their homes. At the same time the practitioner in the rural community will have his interest reawakened in laboratory methods and the latest developments in therapeutic measures.

This recommendation of President Ridge was approved by the House of Delegates of the Missouri State Medical Association, and our delegates to the American Medical Association were instructed to offer the proposition to this body for consideration. In accordance with this instruction the Missouri delegates offer the following resolution:

Resolved, That the House of Delegates instruct the Council on Medical Education and Hospitals to consider the plan proposed by the Missouri State Medical Association, and if, in their judgment, it is found feasible and beneficial, the Council is urged to encourage medical schools to inaugurate suitable methods for providing these vacation periods of practical experience for their students.

This resolution was approved by the Reference Committee on Medical Education and adopted by the House of Delegates.

The Board of Trustees submitted a proposition to the House of Delegates advocating the erection of a new building for the headquarters of the Association. The Board of Trustees considers this the most important question now

commanding its consideration. In 1891 all the business of the Association was transacted in one room, about 12 by 15 feet in size, with two or three employees constituting the administrative personnel. From this small beginning the activities have grown in the past thirty-eight years until now the Association occupies the splendid building that provides a total floor space of 112,500 square feet and the personnel has grown from the two or three to a total of nearly five hundred persons at work every day in the headquarters building. The Board of Trustees foresees the inadequacy of this building to keep pace with the growing needs of the Association for more than a few years, and, looking forward to the time when a new building will be needed, they propose to the members the erection of a building that will outwardly and inwardly "express the scientific strength, the high ideals, the humane spirit and the power of more than a hundred thousand physicians who have dedicated themselves to the advancement of knowledge and the service of mankind. . . . The great cathedral, the beautiful temple of justice, the well designed school building, the towering pile devoted to commerce—all have a very real significance aside from their appeal to the eye as architectural triumphs. They represent the beauty, the righteousness, the dignity and the strength of religion, law, education and honorable business; and so would a building erected by and for the organized medical profession in the United States not only serve a pressing material need but would symbolize its aims and purposes and memorialize the sacrifices, the service and the achievements of medicine in our own country. Every member of the nearly 100,000 would honor himself and his profession in contributing according to his means to this enterprise."

The attendance at the meeting quite naturally was not large as compared with the registration in cities more centrally located, but it approached the number that officials estimated would be present. The total registration from all states was 3061; from Missouri, 55 Fellows registered. All the delegates from Missouri were present except Dr. E. H. Skinner, Kansas City, and Dr. A. R. McComas, Sturgeon. Dr. O. W. Koch, Clayton, was present and served as alternate for Dr. McComas.

For President-Elect, Dr. William Gerry Morgan, Washington, D. C., was elected; for Vice President, Dr. Ernst A. Sommer, Portland; for Secretary, Dr. Olin West, Chicago, was unanimously reelected; for Treasurer, Dr. Austin A. Hayden, Chicago, was also unanimously reelected; for Speaker of the House of Delegates, Dr. F. C. Warnshuis, Grand

Rapids, Michigan, was unanimously reelected; for Vice Speaker of the House of Delegates, Dr. A. E. Bulson, Fort Wayne, Indiana; for the Board of Trustees, Dr. D. Chester Brown, Danbury, Connecticut, was reelected for a term of five years and Dr. Allen H. Bunce, Atlanta, Georgia, was elected to succeed Dr. E. H. Cary, Dallas, Texas, whose term expired. Detroit was selected as the place of meeting for the 1930 session.

ANOTHER MARTYR TO YELLOW FEVER

Yellow fever in its latest stand against the sure inroads of science has taken another martyr, Dr. Paul A. Lewis, one of the most distinguished research pathologists of this country, who died June 30 at the Rockefeller Foundation's Laboratory at Bahia, Brazil. His death came just a week before John D. Rockefeller celebrated his ninetieth birthday as the wealthiest man and the greatest philanthropist in history, and two weeks after George E. Vincent, president of the Rockefeller Foundation, had thus described the latest moves in the war on the yellow menace of the tropics:

Beginning with the banishment of yellow fever from Guayaquil, Ecuador, in 1918-1919, and the prompt suppression of a secondary epidemic in Northern Peru, the work was pushed steadily in Mexico and Central America until by 1925 the fever had disappeared from these countries and seemed to be making its last stand in Northern Brazil. Here, too, cooperative measures were adopted by the Brazilian government and the Foundation met with initial success. In 1927 there was reason to hope that yellow fever was under control in the chief ports of Northern Brazil and was likely to burn itself out in the back-country.

But this hope proved oversanguine. Possibly as a result of troop movements through old yellow fever areas in the interior, cases began to appear again in port cities and in the back-country. Prompt and vigilant action was showing results, when, in May, 1928, the disease appeared in Rio de Janeiro for the first time since 1908 when Oswaldo Cruz brought his famous campaign to a successful end. Official figures give a total of 108 cases in the city and suburbs up to September 10. The mortality was 55.5 per cent. Eighty-two per cent of the persons attacked were males. Native resident Brazilians were much less susceptible than people who had lived in the city for a short time. Of those who had the disease 85 per cent had been resident for less than five years. In Northern Brazil during 1928 a total of twenty-one cases was reported.

It will be remembered that yellow fever (the inciting cause of which is a filterable virus) is spread by a mosquito, the female *Stegomyia* (or *Aedes aegypti*). About twelve days after the mosquito has bitten a person who is in the early stages (first three days) of a yellow fever attack, its bite becomes infective and it can then transmit the disease to a non-immune. There are no human "carriers" of yellow fever. Survivors are not subject to a second attack and are not a source of danger to others.

The arrival in Rio de Janeiro of soldiers from Northern Brazil carrying mild or masked cases of yellow fever which were not detected and isolated, is considered the probable origin of the epidemic. The Brazilian Director-General of Public Health is concentrating men and money upon the reduction of mosquitoes to a point where the epidemic cannot spread.

Even while the disease was executing this surprise attack in Brazil, medical investigators were making notable advances against it in a British Institute at Accra on the Gold Coast (where the noted Noguchi was slain fifteen months ago by yellow fever), in a special station at Lagos, Nigeria, at Bahia, where Dr. Lewis met his death in the conduct of his research, and in quarters provided by the Rockefeller Institute for Medical Research in New York.

A Missourian shared in one of the year's chief contributions to the knowledge of yellow fever. The work of Dr. E. V. Cowdry, professor of cytology in Washington University School of Medicine, on leave to the Rockefeller Institute, was a principal factor in establishing the identity of African with South American yellow fever, long believed to be separate diseases. It was demonstrated that in Africa, at least, other mosquitoes besides the *Aedes aegypti* are capable of carrying the disease. Further data on the nature of the virus were gathered and certain similarities to other virus diseases were established. A method was evolved for preserving the dried virus so that it could be shipped without loss of virulence from the field to the laboratories in New York. And, signaling the hazards of this war of science for the good of all mankind,—a series of tests indicated that the virus can penetrate the unbroken skin.

Dr. Paul A. Lewis, latest of a long and heroic list, was fifty years old and leaves a wife and two children. He received his M.D. from the University of Pennsylvania in 1904, after preparatory work in the University of Wisconsin and the Wisconsin College of Physicians and Surgeons. Four years later he became an associate in pathology in the Rockefeller Institute. After 1910 he taught and conducted original investigations in various schools until, in 1916 as professor of pathology in the University of Pennsylvania and head of the Phipps Institute laboratories, he was called to New York by the health department as one of a commission to combat an epidemic of infantile paralysis. From 1917 to 1921 he was a Commander in the United States Naval Reserve. In 1923 he became associated with the Rockefeller Institute's animal pathology department at Princeton, New Jersey. He joined a group

of distinguished pathologists in 1925 on the Research Committee of the National Tuberculosis Association in a concerted movement which has achieved notable results in the study of tuberculosis, and he was considered a pioneer in its treatment.

Surely no perilous quest in all the history of mankind has been more thrilling than the noble, sometimes almost but never quite hopeless, crusade of the men of medicine against yellow fever. It is nearing its end. An effective treatment has been found in convalescent serum. As Dr. Lewis' name is the latest, so must it be near the last on the list of fallen warriors. That list is long, regrettably long. It records the loss of men whom science and mankind could ill afford to lose. But their sacrifice has not been vain. They, and those who carry on, will soon have closed the record of yellow fever's vicious but losing fight. That record is one of the most brilliant among the many glorious achievements in the history of the noblest of all professions.

THE "NOBLEST" PROFESSION

The new Secretary of War, the Honorable James W. Good, told the graduates of West Point this year that their profession was the noblest on earth. That sort of pride is natural and commendable, within limits, in all professions. We submit, however, that the Secretary's estimate might have been somewhat reduced by a glance at professions other than the military.

Let us take the country doctor. To this day he very often must be his own nurse, druggist and chauffeur. The roads over which he must make his daily and nightly march over the great enemy of all mankind are still, very often, topographically a No Man's Land. In winter he must take to horse, and the horse frequently quits before he does. Then he sets off along roads and through fields drifted deep, and when his feet grow numb he removes his shoes to the bite of the raw snow. In late August and September, at Christmas time and in the "baby" season he miraculously contrives to live without sleep. Sometimes he gets paid—after the harvest or when a load of stock brings in enough to satisfy other creditors first. He has no time to be ill himself. He fights his lonely battle—hopelessly, for there will be sickness and death long after these dread allies have laid him away—until his constitution is hollow and brittle as last fall's wheat stubble. In twenty years or forty he is through. In his old age he and his family have for comfort and subsistence many books filled with letters and figures recording many long rides over the hills,

many victorious fights against the enemy, many dollars which those rides and those fights should have brought but did not bring him and his family. They are nice souvenirs. It may be possible for the Doctor to think of them with pride. But they are not worth a cent.

One campaign against membranous croup may cost him more in physical hardship, in actual suffering, in danger to his own life and in mental anguish than the campaign against Moscow cost Napoleon. Let Secretary Good weigh the honor of the soldiers' battlefield against the nobility of this.

So much for the honor and hardships of the fight itself. But there remain to be weighed the respective contributions of the physician and the soldier to the welfare and happiness of mankind and to the glory of mankind, and the divergent hopes and ideals which arm each for his battlefield. Let the Secretary, then, lay in the balances the suffering and sorrow or health and happiness won for humanity by the soldier and by the physician. Let him weigh the achievements of the doctor against the achievements of the soldier for the glory of mankind, and let him not forget that every time the soldier's sword has been uplifted in the right, it was because another soldier had lifted sword in the wrong. And when he has done all this—when he has placed in the balance the honor of the fight itself, the fruits of victory and the glory or the shame, let him weigh also the high aim of the soldier and of the physician.

HOSPITAL NEEDS IN ST. LOUIS

A steady increase in the number of patients in city institutions without any increase of facilities or staff is pointed out in the annual report of Hospital Commissioner Lohr, of St. Louis, who describes some of the resulting conditions as "a disgrace to the city," and makes recommendations as follows:

City Hospital. Construction of a psychiatric clinic and psychopathic hospital north of the present hospital group. Enlargement of the children's department, preferably in a new building, with a receiving ward, an infants' ward and a laboratory. Expansion of the medical library and the X-ray equipment. Purchase of an electrocardiograph.

City Sanitarium. Acquisition of fifty acres of ground south of the institution to care for expansion of the sanitarium, the Isolation Hospital and the City Infirmary.

City Infirmary. An employees' building, and additional quarters for patients.

Koch Hospital. Additional buildings for white men and women and a permanent chil-

dren's building to replace the present frame cottages but especially new buildings for negroes of both sexes.

Training School for Feebleminded Children. A small hospital building, an auditorium and additional dormitories for both white and negro children.

Conditions at Isolation Hospital were treated separately in Dr. Lohr's annual report as Superintendent of that institution, his position prior to his recent appointment as Hospital Commissioner. As he summed them up, "There is today no modern contagious disease hospital in the United States which is as handicapped as we are in facilities for the proper and safe isolation of patients." Overcrowding at the hospital has reached a point where males and females, black and white, are packed together in the same ward and there is serious danger of cross-infection, of which he added, "Public criticism in such an event would be most severe and the responsibility tremendous."

The only remedy, to his mind, was the construction of a new Isolation Hospital. Present buildings, he suggested, could be used for the care of advanced tuberculosis cases at less expense than would be incurred in the construction of tuberculosis pavilions at City Hospitals Nos. 1 and 2. Remodeling of Isolation Hospital to permit further use of the same building for contagious diseases would require an expenditure estimated at \$150,000 and the pavilions would cost \$700,000, as against his estimate of \$600,000 for the total cost of a new hospital for contagious diseases.

He noted a remarkable increase in the incidence of meningococcus meningitis in line with a similar increase throughout the United States and some other parts of the world. In the past the number of these cases admitted to the hospital has been 20 to 25 a year. Last year it increased to 166.

The most critical situation at City Hospital, he reported, is in the observation ward. He pointed out that the building was absolutely unsuited and added, "The lack of proper facilities for the study of these unfortunate cases is a disgrace to the City of St. Louis." Urging the prompt erection of a new city hospital for negroes, he remarked, "Pages and pages of criticism have been written about this hospital, but it is really surprising to find such a high standard of professional work under conditions which are such a definite handicap to one's efforts."

Of the situation at Koch Hospital and the tuberculosis situation in St. Louis generally, which already has aroused the concern of not only local but national students of public

health, he said: "Every available bed is almost constantly occupied and the problem of where to put the tuberculous patients is becoming more acute every week. In as much as the treatment of tuberculosis is a long drawn out process, vacancies are created rather infrequently by recoveries. Hospital facilities for tuberculous patients in St. Louis are totally inadequate."

The Trudeau Club and the St. Louis Medical Society have been fostering a bond issue to relieve the tuberculosis situation, which, as every physician and a great number of lay St. Louisans know, is so acute as to constitute an emergency. It is growing more acute every day and St. Louis must provide immediate remedy or admit to the world that it is too inert to clean its own house in this most important phase of public health. The situation as described by Dr. Lohr at Isolation Hospital is no less serious. The danger of cross-infection cannot be lightly dismissed. Its occurrence would give rise to an international scandal, but the scandal itself would be the result least to fear in consideration of another result which might be death through causes that would amount to homicide. Certainly that danger should be obviated by the necessary increase of facilities, and it seems to us that Dr. Lohr's suggestion for conversion of the present Isolation Hospital into an institution for the care of patients in advanced stages of tuberculosis, on the face of it, merits consideration. In the case of the City Hospital a similar emergency exists in the antiquated facilities for the care of psychopathic patients.

It is an extensive program which Dr. Lohr has outlined, but it is one demanded by responsibilities which St. Louis cannot longer evade. Some phases of it, perhaps, may be held in abeyance so far as actual execution goes, but they must be planned and prepared for now; some other phases of the program demand immediate and comprehensive action. The city has the funds to begin on this program. As the April grand jury pointed out in its report on the needs of the City Hospital, "A million dollars was voted by citizens of St. Louis to care for hospital extension. Not a penny of this has been spent to date, despite the fact that the hospital is badly in need of the extensions for which this fund was voted."

That million dollars will not cover all of the emergency requirements. Additional funds must be raised by another bond issue. Public lethargy in such matters is well understood; in fact, it is thoroughly demonstrated in the fact that these conditions have been allowed to reach the point of emergency. It is to be hoped, however, that public lethargy will not last until the

tuberculosis death rate in St. Louis takes a sudden rise or the city is made notorious by the outbreak of cross-infection in the antiquated and outgrown Isolation Hospital.

THE CANCER PROBLEM

Cancer is presented as primarily a problem to be handled by public health departments, and one which will pass more and more into the hands of public health agencies, in an article by Dr. Joseph Colt Bloodgood in the *Campaign Notes* of the American Society for the Control of Cancer. Dr. Bloodgood cites that a bill is pending in the U. S. Senate for \$50,000 for the Federal Department of Health and the National Academy of Science to make a survey to determine how Congress can best aid financially in the control of cancer; and that the people of Massachusetts, through their legislature, have appropriated more than \$200,000 a year to be expended through the State Department of Health for the care of cancer patients applying for state aid and the education of the people in regard to cancer.

Dr. Bloodgood gives surprising evidence of the rapidity with which groups devoted to cancer control are turning to its public health aspect and public health groups are turning to cancer. He points out that it is only three years since Professor Welch and Professor Howell of the School of Hygiene discussed cancer as a public health problem at the annual public meeting of the Maryland Cancer Committee. Not one member of the public health department was invited to speak at the Lake Mohawk Convention in that year, 1926. The very next year the principal speakers at the annual meeting in New York were the Massachusetts and New York state commissioners of health. In 1928 the Cancer Conference was held in London with a very large representation of public health officials and fifteen papers by members of the public health department, including the Minister of Health. A cancer symposium was held at the last meeting of the American Public Health Association. Boards of health are prominently represented among the thirty trustees recently selected by the American Society for the Control of Cancer. The Federal Health Department has begun cancer research with an advisory committee of scientists and cancer students organized by Surgeon-General Cumming. A resolution was adopted at the final session of the Surgeon-General's Influenza Committee asking Congress to appropriate money for research by the Public Health Service in the cause, prevention and cure of influenza, infantile paralysis and cancer.

No state, however, has gone as far as Massachusetts. Cancer activities of city, county and state departments of health in general do not go beyond the proper recording of cancer deaths, but many of them, Dr. Bloodgood pointed out, are beginning to take some interest in it and prepare themselves to an extent for the new duties which will be theirs should the cancer problem be turned over to the departments of health.

"As the cure of cancer today is an educational problem," reasons Dr. Bloodgood, "and as the health department is in the best strategic position to get to the public correct information in regard to cancer, it is the opinion of the majority of cancer students that this educational function or effort should be at once assumed by the departments of health of the United States."

Dr. Bloodgood states that it is his opinion that the time is now ripe for public health officials to prepare for the cancer problem, consider budgets, and begin to educate the people and their representatives. He says that many of the trustees of the American Society for the Control of Cancer believe that there should be close coordination and cooperation between the state, city and county departments of health, the representatives of the Cancer Society, lay organizations, nursing organizations and the state and local medical and dental societies. That has been amply demonstrated in St. Louis and Missouri. The holding of annual free cancer clinics with instructive lectures and articles on the disease has gone far toward mitigating the difficulties of the problem. We believe with Dr. Bloodgood that it is essentially a public health problem and one in which we should and shall cooperate.

QUICKLY DONE

Probably the shortest and most successful money raising session of a medical board of trustees ever held was recently called in New York by the trustees and medical board of the Neurological Institute to consider plans for raising \$150,000 to complete the payments on their new building at the Medical Center. At the opening of the meeting it was announced that an anonymous donor had subscribed the entire \$150,000.

The benefactor's aim was to clear the way for the establishment of the \$2,000,000 research endowment. The trustees thus were enabled to give immediate approval to a comprehensive program, which has been nearly a year in preparation and in which 59 members of the medical staff of the Institute are to participate, of research in 65 different lines of neurology and psychiatry. A special investiga-

tion of organic brain changes in early life leading to maladjustments, delinquency and criminality also was approved, as was the publication of a journal for neurologists, psychiatrists, scientific workers in allied fields, and lawyers. A campaign has been launched for the \$2,000,000 endowment.

NEWS NOTES

Dr. Arthur C. F. Brown, St. Louis, will sail on the S. S. Berengaria August 7 for a three months visit to the medical centers of Europe, including Vienna, Berlin, the University of Graz, Paris and London.

The Catholic Hospital Association of the United States and Canada announces the removal of its general offices and the editorial offices of *Hospital Progress*, its official organ, from 612 North Michigan Avenue, Chicago, to 1327 South Grand Boulevard, St. Louis. Reverend Father Alphonse M. Schwitalla is president and Mr. M. R. Kneifl is executive secretary.

The International Assembly of the Interstate Postgraduate Medical Association of North America will meet October 21-25, 1929, at Detroit. All meetings will be held in the new Masonic Temple. Drs. David P. Barr, McKim Marriott and Elsworth Smith, of St. Louis, will be guests of the Detroit Assembly and will deliver addresses. The Statler and the Book-Cadillac hotels will be joint headquarters.

The Kansas City Southwest Clinical Society held its monthly clinic, Tuesday, July 16, 1929, at Bell Memorial Hospital, Kansas City. There were morning clinics on osteomyelitis in children by Dr. C. B. Francisco; gallbladder surgery by Dr. Thomas G. Orr; diabetes by Dr. Hermon S. Major. Dr. Otto H. Schwarz, St. Louis, Professor of Obstetrics and Gynecology, Washington University School of Medicine, delivered an address on "Puerperal Infection and Some Other Complications of Pregnancy." Others on the program were: "Arthritis" by Dr. Russell L. Haden; "Problems in Abdominal Surgery," Dr. A. E. Hertzler; "Heart Cases," Dr. P. T. Bohan; "Nose and Throat Problems of the Family Doctor," Dr. S. E. Roberts. Luncheon was served at the hospital and dinner at the Mission Hills Country Club. In the evening the Jackson County Medical Society met at the Mission Hills Club when Dr. Otto H. Schwarz discussed "Eclampsia."

The Eleventh Decennial Convention for the revision of the pharmacopoeia of the United States of America will meet at Washington, D. C. on May 13, 1930.

Dr. George A. Johns, St. Louis, was appointed superintendent of State Hospital No. 3, Nevada, at the semiannual session of the State Eleemosynary Board, June 28, 1929. Dr. Johns, who was formerly in charge of the St. Louis City Sanitarium and also state psychiatrist for a time, succeeds Dr. James H. Parker.

Dr. Tinsley Brown, Hamilton, Secretary of the Caldwell County Medical Society, by invitation delivered an address at a luncheon meeting of the Missouri Health Association at Jefferson City, May 24, his subject being "The Country Doctor and Sanitation of the Past." Dr. Brown gave a very splendid talk on this subject with which he is intimately acquainted for he himself has been a country practitioner for more than fifty years.

Examination of candidates for commission as assistant surgeon in the Regular Corps of the United States Public Health Service will be held at Washington, D. C., Chicago, New Orleans and San Francisco, September 9, 1929. Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination. Requests for information or permission to take this examination should be addressed to the Surgeon-General, United States Public Health Service, Washington, D. C.

The United States Civil Service Commission announces open competitive examinations for physiotherapy aide, occupational therapy aide (arts and crafts), physician, and associate physician. Applications for physicians and occupational therapy aide must be on file with the Commission at Washington, D. C., not later than December 30, 1929, and for physiotherapy aide not later than September 10, 1929. The examinations are to fill vacancies in the hospitals of the Veterans' Bureau and the Public Health Service throughout the country. Full information may be obtained from the Civil Service Commission at Washington, D. C. or the secretary of the Civil Service Board of Examiners at the post-office in any city.

A central radio receiving set with headphones at every cot, loud speakers in the various recreation rooms, and a microphone on the stage of the hospital theater to broadcast programs there, has been installed at the Veterans' Hospital at Jefferson Barracks, St. Louis.

The City Council of Hamilton, Missouri, has passed an ordinance to control the milk supply as recommended by the State Board of Health. J. P. Clark, V. S., representing the work under the Board of Health, is supervising the matter. L. C. Smith, V. S., has been appointed local inspector. All dairies are now being rapidly rebuilt to comply with the ordinance.

The Clinical Congress and the Eighth Annual Meeting of the American College of Physical Therapy will be held at Hotel Sherman, Chicago, November 4, 5, 6, 7, 1929. One half of each day will be devoted to a variety of clinics in the sections on medicine, surgery and allied specialties, and eye, ear, nose and throat. There will also be a joint meeting of all sections for the presentation of numerous addresses of interest to all physicians irrespective of their specialties. Education in physical therapy will be thoroughly stressed. Scientific papers, clinical addresses, demonstrations of technic, and scientific and technical exhibits, will comprise the remainder of the scientific program. Duly licensed physicians, their technicians and assistants, properly sponsored, are cordially invited to attend all sessions.

The exercises dedicating the new building of the Lincoln School for Nurses in New York City to "its high purpose for the advancement and progress of scientific medicine among the colored race," took place on June 19. The principal speakers of the occasion were the Honorable James J. Walker, Mayor of New York City, and Dr. Linsly R. Williams, Director of the New York Academy of Medicine. Mrs. Arthur Curtiss James, representative of the board of managers, outlined the new policy of training negro women for executive positions in the public health and nursing fields. The structure is ten stories in height. On the roof is a large open air solarium to be used for recreation purposes. The infirmary for nurses is on the top sleeping floor, which has been equipped as a small hospital. There is a five bed ward and two single bed wards for isolated cases, a dressing and treatment room, diet kitchen, and large sunny sitting room for convalescents. All sleeping quarters have been allocated according to classes, with a special wing for graduate nurses.

Dr. Frank C. Neff, Kansas City, read a paper before the Association of American Teachers of Pediatrics at Portland, July 9, on "Special Assignment of Pediatric Subjects to Students in the Senior Year."

The Association of Assistant Physicians of Missouri met at State Hospital No. 4, Farmington, June 26-27, 1929. Dr. Emmett F. Hctor, superintendent of the hospital gave the address of welcome, Dr. T. R. Frazer, Fulton, responding. Dr. M. A. Bliss, St. Louis, spoke on "The Relation of the State Hospital to the Community." The "Classification of the Mentally Defective Child" was taken up by Dr. F. H. Maples, of the Missouri State School, Marshall. Dr. P. S. Tate, Farmington, addressed the meeting on "The Medical Care of Patients in Our State Institutions." On June 27 the guests made a tour of the hospital.

The American Association for the Study of Goiter has offered a prize of \$300 and a medal of honor to the author of the best essay based upon original research work on any phase of goiter presented at their annual meeting at Seattle, Washington, in September, 1930. Competing manuscripts must be in the hands of the corresponding secretary, Dr. J. R. Yung, Rose Dispensary Building, Terre Haute, Indiana, by July 4, 1930, so that the award committee will have sufficient time to thoroughly examine all data before making the award. Full particulars of other regulations governing details of the offer will be furnished on application to the corresponding secretary.

Dr. William H. Luedde, St. Louis, director of the prevention of blindness department of the Missouri Association for the Blind, will present the Leslie Dana Gold Medal for 1929 to Dr. Ernest Fuchs, of Vienna, in recognition of "the most outstanding achievement in the prevention of blindness and the conservation of vision." The presentation will be made at the International Ophthalmological Congress in Amsterdam, Holland, September 10. This medal is offered annually by Mr. Leslie Dana, St. Louis. "In selecting Dr. Fuchs, there was a departure for the first time from the usual custom of considering only Americans for this honor," said Mr. Lewis H. Carris, managing director of the National Society for the Prevention of Blindness. "Dr. Fuchs chartered the way for all prevention of blindness work accomplished throughout the world in the last forty-five years; he did this when he won the prize at the Fifth International Congress for Hygiene at the Hague in 1884 with his essay

on 'The Causes and Prevention of Blindness.' Dr. Fuchs was a professor of ophthalmology in the University of Liege at that time; he has been distinguished in his profession for more than half a century."

A conference of all the forces engaged in the work of preventing blindness and conserving vision in America will be held in St. Louis, November 11-13. This conference will be attended by public health officials, oculists, safety engineers, illuminating engineers, educators, research workers, social workers and others.

The \$400,000 new building of Central Institute for the Deaf, fronting on Forest Park in St. Louis, was dedicated June 19 with distinguished men from many cities and from all branches of medicine in attendance. First use of the new auditorium occurred that afternoon, in a demonstration of the work of the institute and the graduation of 22 young women and a young man as teachers of the deaf.

Gifts amounting to \$365,000 toward cost of the building were announced by the director, Dr. Max A. Goldstein. They included a \$50,000 juvenile dormitory, to be called Jackson Johnson Hall, from the late Jackson Johnson and Mrs. Johnson; a \$50,000 girls' dormitory, to be called Luehrmann Hall in memory of Charles F. and Mary C. Luehrmann, from their children, George E. W., Alfred D. and Edward H. Luehrmann; the \$25,000 Agnes M. Jamison Infirmary, from H. Stuart Jamison in memory of his wife, and the \$25,000 Grove Memorial Library from the late Mr. and Mrs. Edwin W. Grove, Sr.

Dr. Goldstein described the institute as the first important cooperation between otologists and teachers. He said the institute created the acoustic method of instruction, established the first training school for teachers of the deaf to have university curriculum and entrance requirements, organized the Society of Progressive Oral Advocates, a national group of teachers fostering oral instruction in opposition to sign language, introduced the osiso to the teaching and medical professions, demonstrated the possibilities of speech analysis, and was the first school for the deaf to accept children of kindergarten age.

A phonetic laboratory, where the osiso is being used to develop a phonetic alphabet, is included in the new four-story building, which is of buff brick and terra cotta in a modified Spanish design. There are also an anatomical laboratory and an acoustic laboratory, where an audiometer worth \$12,000 to \$15,000, the gift of the American Telephone and Telegraph Company is installed in a sound-proof room for research.

Reverend Father Alphonse J. Schwitalla, Dean of the St. Louis University School of Medicine, announced changes in the organization of the departments, including the establishment of a full department of radiology with Dr. LeRoy Sante as director, and the division of the anatomy department into a section of micro-anatomy in charge of Dr. Albert Kuntz, and a section of gross anatomy in charge of Dr. Daniel M. Schoemacker. Dr. William D. Collier has been made director of the department of pathology and Dr. William E. Sauer, director of the department of otolaryngology. Drs. Sante and Collier have been promoted to full professorships as have also Drs. William P. Glenmon and Harvey S. McKay in the department of surgery.

The following have been advanced or appointed to the positions indicated: Dr. Joseph L. Gross, assistant in anatomy; Dr. Wesley W. Hanford, assistant in gynecology and obstetrics.

The following have been advanced to senior instructorships in the department of internal medicine: Drs. Rudolph V. Powell, Hyman I. Spector, Oswald P. Falk, Alphonse McMahon and Eugene Lee Shrader. The following have been advanced to instructorships: Drs. Harry G. Bristow, August A. Werner and James H. Cummings. Dr. Joseph M. Keller has been promoted to associate professor of ophthalmology; Drs. Maurice L. Greene and Charles J. Gissy to instructors, and Drs. Theodore E. Schindewolf and Albert Hooss to assistants. In the department of otolaryngology, Dr. Hugo Reim has been advanced to associate professor, and Dr. Paul F. Kistner to senior instructorship; John T. Brundage, Ph.D., to instructor in pharmacology; Dr. Joseph C. Peden to senior instructorship to radiology; Dr. Edward H. Kessler to senior instructorship in radiology; Dr. Paul F. Titterington to senior instructorship in radiology; Dr. Lex G. McCutchen to instructorship in radiology; Dr. Edgar W. Spinzig to instructorship in radiology; Dr. John R. Roberts to senior instructorship in pathology. In the department of surgery the following have been advanced to senior instructorships: Drs. Forest H. Staley, Walter E. Hennerich, Herman Maas, James F. Clancy and V. Siegel; C. J. Vollmar and Warren G. Marston are to be assistants in surgery. In the department of urology, the following have been advanced to senior instructorships: Drs. Benjamin F. May and Dr. Joseph E. Glenn.

Dean Schwitalla also announces the creation of the Wolfort Scholarship to help a needy student of superior excellence not only in his undergraduate medical career but also in pursuit of a specialty for two additional years

either in this university or in another. The donors were Mr. Sigmund and Miss Clara Wolfort in memory of their parents.

The June meeting of the St. Louis Doctors' Golf Club was held at the North Hills Country Club, June 21, 1929. Seventy players participated in the tournament. After the tournament, which was thoroughly enjoyed by the members, a dinner was held in the grill room of the club. After the rendition of a number of classical melodies by the Golf Sextette, the president, Dr. Amand Ravold, called the meeting to order and distributed the prizes as follows:

First prize, a handsome cup donated by the Hollywood Restaurant, won by Dr. I. R. Davis and Dr. Leith H. Slocumb, both shooting a seventy-eight. Owing to this tie, the two contestants putted for the cup, Dr. Davis winning it.

Second prize, a physicians' grip, donated by the A. S. Aloe Company, given to Dr. L. H. Slocumb as runner-up.

Third prize, a desk fountain pen, donated by Mallinckrodt Chemical Company, for low net, won by Dr. Ben May with a score of sixty-eight net.

Fourth prize, pen and pencil set, donated by Schmidt Instrument Company, awarded Dr. W. B. Yost as runner-up, net sixty-eight.

Fifth prize, one dozen golf balls, donated by University Drug Store, won by Dr. Charles E. Hyndman, net sixty-nine.

Sixth prize, waste receptacle, donated by Hettinger Brothers, given to Dr. R. E. Mason, net sixty-nine.

Seventh prize, cigarette case and lighter, donated by Victor X-Ray Corporation, awarded Dr. Leith H. Slocumb, in a driving contest for direction and distance, Dr. Slocumb driving two hundred and seventy-four yards between the flags.

Eighth prize, cigarette lighter, donated by Merck & Company, for best form displayed in driving, won by Dr. S. A. Levey.

Ninth prize, one dozen golf balls, donated by Greengard Drug Company was won by Dr. James F. Clancy.

Tenth prize, a pair of cuff links, for the best score of four on number five hole, was won by Dr. Guy Simpson.

Eleventh prize, a book by Logan Clendening, donated by C. V. Mosby Company, for honest golfer, was won by Dr. E. C. Funsch.

Twelfth prize, for a visitor not contesting, a book by Horsley donated by C. V. Mosby Company, won by Dr. C. H. Shutt.

Thirteenth prize, highest score on any hole

(fifteen), was won by Dr. R. H. Davis, cigarettes donated by Liggett & Myers Tobacco Company.

Fourteenth prize, blind bogey, won by Dr. D. L. Harris, cigarettes donated by Liggett & Myers Tobacco Company.

Fifteenth prize, blind bogey, won by Dr. Fred Bailey, cigarettes donated by Liggett & Myers Tobacco Company.

Another meeting will be held in September of this year and Westborough Club was tentatively selected for the place.

The president thanked Dr. C. H. Shutt, president of the St. Louis Medical Society, and the editors of the Bulletin, Drs. Alphonse McMahon and Howard Bell, for their cooperation in advertising the tournament.

The motion pictures taken at the tournament will be shown at the next meeting.

The officers for the year 1929 are Dr. Amand Ravold, president, and Dr. R. B. H. Gradwohl, secretary-treasurer.

The following articles have been accepted for New and Nonofficial Remedies:

Ciba Co., Inc.

Isarol-Ciba

Deshell Laboratories

Petrolagar with Milk of Magnesia

G. D. Searle & Co.

Sulpharsphenamine—Searle, 0.1 Gm. Ampules

Sulpharsphenamine—Searle, 0.2 Gm. Ampules

Sulpharsphenamine—Searle, 0.3 Gm. Ampules

Swan-Myers Co.

Canada Blue Grass Concentrated Extract
—Swan-Myers

OBITUARY

LEWIS E. CARTHRAE, M.D.

Dr. Lewis E. Carthrae, Corder, a graduate of Missouri Medical College (now Washington University School of Medicine), St. Louis, 1874, died at his home July 5, aged 84. He was the oldest physician in Lafayette County and had practiced at Corder since 1879.

Dr. Carthrae was born at Miami, Saline County, Missouri, January 11, 1845. His family removed to Lafayette County when he was three years old and he received his early education there, later entering Independence Academy at Independence, Missouri, and then beginning the study of medicine. He began the practice of medicine at Aullville and removed to Corder within five years. He and

Mrs. Ella Carthrae, who survives him, were married November 16, 1871, at Mrs. Carthrae's home in St. Louis. He was a collateral descendant of George Washington. He was distinguished as a citizen no less than a physician. He had been ruling elder of Corder Presbyterian Church since 1884 and superintendent of the Sunday School for more than forty years. He was treasurer of the Corder Masonic Lodge. He was a past president and a charter member of the Lafayette County Medical Society.

Dr. Carthrae is survived by his widow, a son, Dr. Lewis Carthrae, Jr., Corder; a daughter, Miss Edna Carthrae; and a sister, Miss Emma Stapp, Hardin. Another son, Dr. Walter Carthrae, died in 1901. Funeral services were held at the Presbyterian Church in Corder with interment under Masonic auspices directed by Dr. W. R. Eckle, of Lexington. Physicians serving as honorary pallbearers were: Drs. A. J. Chalkley, C. T. Ryland and J. Q. Cope, of Lexington; Drs. J. A. Mann and F. W. Mann, of Wellington; Drs. W. C. Webb and W. A. Koppenbrink, of Higginsville; Dr. W. G. Harwood, Dover; Dr. E. F. Martin, Corder; Dr. J. W. Horner, Alma; Drs. G. A. Richard and L. S. James, of Blackburn; Dr. E. L. Johnson, Concordia; Dr. Ralph W. Holbrook, Kansas City.

FREDERICK B. DRESCHER, M.D.

Dr. Frederick B. Drescher, St. Louis, a graduate of Missouri Medical College (now Washington University School of Medicine), 1884, died July 12, 1929, at Lutheran Hospital, of pneumonia, aged 68.

Dr. Drescher practiced in south St. Louis for forty-five years. Before graduating in medicine he was for a number of years a retail druggist. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

He is survived by a brother, Dr. Otto F. Fischer, St. Louis, and one sister, Mrs. Rudolph S. Vitt. Funeral services were held July 15, with interment in Valhalla Cemetery.

ALFRED A. GRAY, M.D.

Dr. Alfred A. Gray, Calhoun, a graduate of the St. Louis College of Physicians and Surgeons, 1896, died May 31, 1929, of cancer, aged 62.

Dr. Gray was born at Windsor, Missouri, August 18, 1867. One year after graduation he located at Calhoun where he practiced until his death. He was a member of Henry County Medical Society since 1902. Surviving are his widow and one daughter.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

- Madison County Medical Society, December 15, 1928.
- Ralls County Medical Society, December 17, 1928.
- Chariton County Medical Society, December 28, 1928.
- Mercer County Medical Society, January 2, 1929.
- Camden County Medical Society, January 11, 1929.
- Benton County Medical Society, February 13, 1929.
- Dent County Medical Society, April 3, 1929.
- Marion County Medical Society, April 8, 1929.
- Platte County Medical Society, April 11, 1929.
- Atchison County Medical Society, April 22, 1929.
- Christian County Medical Society, April 24, 1929.
- St. Francois-Iron County Medical Society, April 24, 1929.
- Schuyler County Medical Society, May 3, 1929.
- Shelby County Medical Society, May 6, 1929.
- Lafayette County Medical Society, May 15, 1929.
- Scotland County Medical Society, May 22, 1929.
- Henry County Medical Society, June 20, 1929.
- Grundy County Medical Society, July 15, 1929.
- Macon County Medical Society, July 15, 1929.

TWENTY-FIRST ANNUAL MEETING OF MISSOURI SOCIETY OF MEDICAL SECRETARIES

The Twenty-First Annual Meeting of the Missouri Society of Medical Secretaries was held at the Kentwood Arms Hotel, Springfield, Wednesday night, May 15, 1929, preceded by a banquet at which forty-two were present. The president, Dr. C. H. Dixon, Moberly, presided.

DR. C. H. DIXON, Moberly: To deliver an address of welcome it seems to me would be like my wife welcoming me to breakfast. This is your meeting. I do not feel that any one should have to insist on your coming here—I feel it is your duty. I look upon the secretaries of the county societies as the backbone of the county organizations, just as we look upon the secretary of the State Association as the backbone of that Association.

This is the way I feel as secretary of a county society. I cannot do my full duty unless I have

some inspiration behind me, and this is the inspiration, this meeting here of the men from over the state. We must have the inspiration from these meetings if we are to carry back a little pep to our own societies. We know if we fall down in our duty the members will fall down in theirs.

We have here better speakers than I and I will not take up your time. We will first hear from Dr. J. H. J. Upham, of Columbus, Ohio, who is one of our honored guests.

Dr. J. H. J. UPHAM, Columbus, Ohio: I notice that the topic of my talk tonight is simply "Address," a good title when you do not know what to talk about. It reminds me of the schoolboy who was told to write a composition. He did not know what to write about so the teacher told him to write about baseball. After some cogitating he wrote: "Baseball game. Rained. No game." It rained this afternoon, but I do not know whether I could get away with that excuse or not. However, there is an inspiration in knowing that I am speaking to secretaries, for having been a secretary myself I know some of your problems and sorrows.

You have been mentioned as the backbone of the organization. Presidents come and go. They are ornamental—sometimes useful, sometimes not. But the secretary is the real head. I told the Women's Auxiliary today a story that I heard some time ago. A man was rather boasting that he was the head of his house, although it was apparent he was not. Finally a friend said to him, "You're all wet. You're not the head of your family—you're only the neck that supports the head." The neck is quite as important as the head, and maybe you are the neck of the organization, carrying the ornamental part—you keep things going.

I was secretary of our state organization for six years. I know when you start in the enthusiasm you all have, but the hardest part is to keep up your enthusiasm in spite of the difficulties that you meet in running your organization. Probably the hardest problem of all is to get out the members—get an attendance, and you probably have tried every variety of method. There are different points of view on the matter of your programs. The question of bringing in outside talent, or of having your own talent, always comes up. Personally, I think for the good of the organization we should develop our own talent as much as we can, because a man always is benefited by writing a paper. It develops your younger men, and even though a man does not seem to present an attractive topic, it is important to develop your men. Then every other evening have an outside essayist to give variety to your meetings. Every once in a while it seems a good thing to get up some kind of a scrap on the program—something that will bring out divergence of opinion. I think there is nothing so good for a society as a good scrap.

Another thing I told the Women's Auxiliary today—I knew one secretary who worked at everything he could possibly think of to get the members out and could not do it, and finally he had the bright idea of calling to the attention of the wives the importance of the meetings. The Auxiliary ladies are getting interested in this. They are coming to appreciate the importance of the local medical societies, which are the backbone of the whole of organized medicine, and if you can get them interested so that they realize the importance of the meetings, when the doctor gets home a little bit tired and talks about how tired he is—says there is a meeting tonight but he does not feel like going,

his wife, instead of being sympathetic will insist upon his going. If you can get the wives interested in the importance of the county society and get their cooperation, you can often get them to spur the husbands to attend the meetings and get good results.

Another good thing it seems to me is to get your county societies interested in public health problems. As you know, that is a burning question. We are having all kinds of uplift work going on and all the various societies are becoming active, and if you can get your society to take up problems of this sort the members will take a prominent place in the community and be consulted on such matters. You will feel a sense of pride in getting the members to come out, and they will feel they have important matters to discuss at the meetings, and also that they have a recognized place in the community when health problems are brought up.

Then every once in a while have a social meeting—a social meeting with something to eat. It is curious how having a little something to eat will bring out a good attendance. You notice what a good attendance there is tonight. It gives the members a little period of relaxation and helps them meet their fellow practitioners, it brings about a better feeling. There is a little of the old feeling that goes away back to the Arabs, that when you eat salt or break bread with a man you are friends. So when we eat together often there is a lessening of prejudice, a frank discussion of various things that bring about a better understanding. You know, particularly in the old days, perhaps not quite so much now, the life of the general practitioner was isolated. He goes about seeing his own clientele, his own patients, and he does not run across his colleagues often except at these meetings. He hears a lot of things about his fellow-practitioners. A patient may leave a fellow-practitioner and come to him and say things about this man—things he has said and done, and he gets a false idea of his fellow-practitioner. If you do not meet people, and know them you sometimes get a mistaken idea from what you hear. You do not realize that when your patients leave you they are carrying the same tales and your fellow-practitioner is getting the same idea of you as you have of him. It does not make for friendship. But with the opportunity of breaking bread together and discussing various things that are of interest to all, a better feeling is brought about in your community. You find the other fellow is not so bad as you thought, and it brings about a friendly state of affairs that is a great help.

Nowadays, with our good roads, there is not the same excuse that physicians formerly had for not attending meetings. It is a question of getting them interested, and in that the program is the essential factor—an interesting program. You must be single-hearted, you must be full of earnestness. It recalls a story I heard the other day of a paper that advertised for a man who was willing to go to Africa to hunt lions. After the editor had retired one night his bell rang and finally when he went down there was a gentleman who was more or less inebriated. I don't know how he got that way nowadays, but he was. He said, "Are you the editor?" "Yes, what do you want?" "Did you run an advertisement for a fellow to go to Africa to shoot lions?" "Yes; do you want to go?" "No, sir; I just came to tell you that under no circumstances would I go." He was so filled with earnestness that he let nothing interfere with him.

You will have to be earnest and full of enthu-

siasm, and persistent and persevering. But do not get discouraged, because you are not the only one—there are others that have the same trouble. Every secretary has the same experience. And yet in some instances you find flourishing, energetic societies, and in others you do not. I think it is the difference in the personality and efforts on the part of the secretary. So if you are at times discouraged just think that there are other fellows suffering in the same way, and keep everlastingly at it. Get up an interesting program, local men and sometimes outside talent; every so often have a social meeting, and then get the wives interested in the importance of the local meetings, and you will be surprised at the results you will have in getting up your attendance. If you once get the women interested, there is nothing can stop them these days. In Ohio we do not have a Woman's Auxiliary. We like to think it is because we are doing the work so well that it is not necessary, but I think it is because the women are so busy trying to clean up poor old Ohio politically that they have not gotten around to it. But if they do take hold they will stir things up in a medical way because you cannot stop them.

When I see their activities nowadays I am reminded of the old story of the cynic's version of the creation. God created the heaven and the earth; in six days created he them; he looked upon his work and found it was good, and he rested. God created man; he looked upon his work and found it was good, and he rested. God created woman; he looked upon his work and found it was good, and since then neither God nor man has rested.

DR. C. H. DIXON: I am sorry the next man on the program is not here. I do not know how long I have been attending our Association's meetings, but this is the first time that Dr. Gaines has not been here. We will now have the pleasure of hearing from the retiring President, Dr. Ridge.

Suggestive Programs for County Societies

DR. FRANK I. RIDGE, President, Missouri State Medical Association: For several years now the papers in our State Association and in most of the county societies have been strictly scientific papers. I cannot help feeling that I would like to see what Dr. Upham mentions—a few fights. I would like to see injected into the medical societies, instead of papers, a rehash—a good debate. I would like to see a debating society on some subject of medical interest. I can go back to the time when I began to practice medicine, and we had a society known as the Academy of Medicine in Jackson County. We had in it an old German doctor who was always quoting the Germans; and another doctor, an American, who said this other man's quotations were not worth anything—that he did not know anything. Then there was a fight on hand and everybody came to hear them. The secretary would put one man on to discuss the other man's paper, and they always had something interesting.

The program committees in many instances are carried away by the P. T. Barnum psychology of these days. They want to see plumes and brass harness, and it has gotten to the point where no society thinks it can have a good, instructive medical program unless they have lantern slides, instead of good argument and debate upon real medical problems. They can sit there and go to sleep while the slides are being shown, and then come around afterwards and say how they enjoyed your presentation of the subject, and they don't know any more than the dead what you did show. But

they have had a good magic lantern show. They are fascinating to the eye, and we will have to admit that sometimes slides are very helpful.

DR. J. MILTON SINGLETON, Kansas City: The function of the county medical society certainly should be to make better practicing physicians out of the entire membership, but without interest in the meetings the society might as well die and no meetings be held. We have had in Kansas City a multiplicity of meetings—hospital staff meetings, Academy of Medicine meetings, clinical society meetings. But the interest in Jackson County has to some extent waned, for which we are sorry. We have appointed program committees and entertainment committees for the last few years without a great deal of results until the past year, and in that time we have had a program committee that has certainly arranged some wonderful programs, with the result that our attendance has been probably doubled. This has stimulated interest in writing papers by local men. We have had a good many out of town guests. The chairman of our program committee is a man who has been a member of the society for some time. He has traveled a good deal and has made many friends over the country, so he has been particularly fitted to procure out of town guests. I think the societies in the smaller towns and in the country may profit by that experience. With our good roads and easy transportation the societies should have a number of guests, but not to the exclusion of the local members. If we just sit back and let the out of town men do the work we are not profiting, we are not growing. Unless our own members can be encouraged to study and prepare papers, with lantern slides, or clinical demonstrations, the society will not be saved by the presence of out of town guests.

Another thing, in the societies in the larger centers the secretary is relieved of a great deal of work that the secretary in the smaller place has to do. The secretary is not responsible for the arrangement of the program. That is usually delegated to the entertainment committee—usually one man does most of the work on that committee. It is possible that the secretary should not be held responsible for the program in the smaller societies, but it should be turned over to some man who has had wider experience, is older in the society, and knows more about the type of program to arrange.

I think the time of the meetings is important. I think it might be a good idea to have them more frequently in the smaller societies—fortnightly instead of monthly might work to advantage. In Kansas City, with all the meetings we have, once a week is a little too much.

Having open meetings where the public is invited is all right. But the main thing is to arrange a program for the year and try in that time to cover the field of medicine pretty generally. Another thing of importance is variety in any single program. Cover some medical subject and some surgical subject, but make it so that all the members will find something of interest in the program. With the secretary of the Society and the chairman of the entertainment committee getting behind the program committee and the chairman of the entertainment committee and with the other members taking an interest in the preparation of papers and reviews of advancing medicine, I think the field should be pretty well covered. No man can read all the medical literature, and the medical society should have a place where new things are discussed. The society should feel itself responsible over a period of years for the covering of new things in medicine in the form of bringing them before the

society for discussion. A symposium on any subject is not usually well attended. The men interested in that one thing attend—the others pass it up. In the cities the men can take advantage of libraries. The American Medical Association provides any amount of articles, and you can get literature from libraries in St. Louis and in Jackson County—all the literature you want. The society should take advantage of that in the preparation of programs and in the study and preparation of papers. I think it would be wise to have clinical demonstrations. We have a good many cases demonstrated before our county society and I think that could be developed in the smaller centers.

Publicity is important. Sending out a card is not enough to arouse interest. If you have visiting members, or if local members appear, it would be well to have a notice in the paper and probably an abstract of the high points—perhaps pictures of the guest and the local member. That would stimulate interest. The patients would say, "Why doesn't my doctor read a paper." It would eventually get all the members interested in doing something.

There certainly should be a spirit of friendship—not trying to advance ourselves and develop ourselves. If we are selfish and do not tell the other man what we are doing and how we are working, we will not make rapid progress.

DR. C. H. DIXON: We are surely honored by the presence of Dr. Jabez N. Jackson. He came in a little late, but better late than not at all. We would like to hear from him.

DR. JABEZ N. JACKSON, Kansas City: I did not come to make a speech. I hoped to hear the other speeches, but I am too late. I am glad to be here among my friends.

DR. C. H. DIXON: We have heard about the neck bearing the body, and the backbone and all that. Now I will present the substance of all this State organization—the neck and backbone and guiding spirit of our Association, Dr. E. J. Goodwin.

State Legislation

DR. E. J. GOODWIN, St. Louis: You have me down for medical legislation. I was glad to hear the other gentlemen take up the difficult subject of how to keep the medical society going and get out the attendance. That is one of the stiffest problems I know anything about, not only to medical organizations but every organization. I have watched that problem for a number of years, and if over the period of a year ten per cent of the society membership gets out to the regular meetings it is considered a good proportion.

Medical legislation this year has been a rather peculiar problem. We went to Jefferson City with only two or three bills that we were interested in—one creating a department of mental and nervous diseases, which would eliminate a great deal of so-called expert testimony in the courts. If it works properly the courts would call upon the department of mental and nervous diseases of the state for doctors and psychiatrists to examine criminals who plead insanity, and upon that report will be based largely the outcome of the trial. Of course it does not eliminate the hiring of experts by either side, either the state or the defense. But as it has worked out in other places, the fact that a body of unbiased and presumably competent men have examined the persons charged with criminal offenses who plead insanity, lessens to a great extent the prejudicial testimony of hired experts.

A peculiar situation developed in the legislature just recently. I will not go into the whole situation, for lack of time, but I think you ought to know something of what happened to the bill of the

osteopaths asking the legislature to give them the right to prescribe narcotics. The United States Government, by bureaucratic pronouncement licensed osteopaths in Missouri to prescribe narcotics simply because our statutes said osteopaths were physicians. Recently the narcotic agent at Kansas City asked the Attorney General for a ruling as to whether osteopaths ought to be permitted to prescribe narcotics, and the Attorney General ruled they should not since they did not comply with the statutes regarding the practice of medicine. The narcotic agent then stopped issuing licenses to osteopaths to prescribe narcotics. Then the osteopaths took the case to the federal court at Kansas City. Judge Otis still has that plea under consideration. He has never ruled on it, and until he does the federal narcotic agent will not issue licenses to osteopaths. This happened last December. The legislature came on and our good old friend, the osteopath physician from Macon, Dr. Hildreth, introduced a bill, No. 615, empowering the osteopaths to administer and supervise the administration of narcotics. We got busy at once and through a great deal of hard work on the part of the county society secretaries—and let me interpolate right here that the work you have done in responding to appeals coming from my office, from Dr. Pearse, and the Committee on Public Health—well, you never will know the actual value and extent of it. I cannot tell you how great has been the influence of you gentlemen in responding to these appeals. The first appeal that went out was on House Bill 660 and stopped the measure right there. Let me thank you now and tell you that I think everybody in the Association appreciates your quick and effective response to these appeals.

The bill was in the House and went to the Public Health Committee, composed largely of doctors, but instead of reporting it out not to be passed, they reported it out "without recommendation." The author of the bill is the representative from Macon, and due to various legislative acquaintances and friends they got it on the calendar for engrossment. They called it up one day. In the meantime we had been working. Immediately there were amendments, and they are there still, for the sentiment against the passage of the bill in the House was so apparent and determined that the author withdrew it from the calendar and put it on the informal calendar, and there it has been ever since.

Then they went over and worked on Senate Bill 615. Senator Hildreth is a member of that committee in the Senate. Senatorial courtesy is that the author of a bill in the committee of which he is a member is entitled to have it reported out "do pass," which was done. They had a terrible time. They had a fight on hand and they fought. Senator Hildreth brought down the faculty from Kirksville college and they worked on it, maneuvering one way and another, and through the hesitancy of some persons that we thought would surely vote against it, the bill was passed in the Senate 19 to 9. Then it went to the House, where there was political maneuvering almost unheard of. The speaker of the House became interested in it. He is a graduate of a reputable medical school, a man we always thought was with us. He never practiced medicine, but he published a medical journal in St. Louis for a long time. He referred that bill to the Committee on Revision, not to a standing committee, but to a committee without authority to pass on bills. We were satisfied with that. They let it lie there until the friends of the bill saw the foolishness of leaving it there, so it was put through into the Judiciary Committee, made up of lawyers.

The chairman of the committee did not call a meeting of the committee to consider the bill. Instead of that, the day the bill was referred to the committee it came out of the committee, was put on the books and next morning it was published as having been put on the calendar. It had never been heard by the committee, the men did not know it was there, the committee did not meet. We sent telegrams to the chairman of the committee and to every member, telling them that we wished to be heard on that bill and asking them to notify us in ample time to get there, but we never heard from them. The bill appeared on the calendar the next day. Doctor Pearse saw the situation, so they took a poll of the Judiciary Committee—they went to every one of them. Some of them said they had never heard of the bill. We had eight men ready to get up in the House and give the history of the maneuvering on that bill, the peculiar manner of getting it into the committee, out of the committee and on the calendar. It is resting there now, and I think, due to some of your good work, it will be killed.

That is the most important bill, from our standpoint, that has come up. The old vivisection bill was introduced early in the session as usual, but we amended it so that it does not affect medical schools or interfere with laboratory investigations. The other measures that went through were of minor importance.

That, Mr. Chairman, is a quick and rapid review of the work this session. It was very interesting, and we developed some very strong friends—and some very bitter enemies. But those enemies are afraid to fool too much with the medical profession. Again I want to say that without the county secretaries none of this could have been successfully accomplished. It illustrates what a secretary can do when he goes to a half dozen men and asks them for help.

The election of officers was held which resulted in the following being elected: President, Dr. J. Milton Singleton, Kansas City; vice president, Dr. C. D. Humbert, Barnard; secretary, Dr. J. T. Hornback, Nevada.

GASCONADE-MARIES-OSAGE COUNTY MEDICAL SOCIETY

The Gasconade-Maries-Osage County Medical Society met in the office of Dr. J. J. Ferrell, Owensville, May 3, 1929, at 2:00 p. m., with Dr. M. E. Spurgeon, Red Bird, presiding. The following members were present: Dr. M. E. Spurgeon, Red Bird, and Dr. W. R. Ferrell, Belle.

The following were reinstated: Drs. Julius Lingenfelter and Herman J. Rickhoff, Hermann; Dr. O. H. Jones, Vienna; Dr. J. J. Ferrell, Owensville.

Officers elected for the ensuing year are: President, Dr. Julius Lingenfelter, Hermann; vice president, Dr. J. J. Ferrell, Owensville; secretary-treasurer, Dr. M. E. Spurgeon, Red Bird. Visitors: Drs. J. S. Summers, W. A. Clark, S. P. Howard, and R. P. Dorris, of Jefferson City, and Dr. H. E. Isenberg, Belle.

Dr. W. A. Clark, Jefferson City, gave a very interesting talk on "Medical Legislation and the Purpose of the County and State Organizations." Dr. Clark's talk was discussed at length by all present.

Dr. J. S. Summers, Jefferson City, gave an excellent lecture from a blood chart explaining the normal and pathological conditions of the blood in certain diseases. He also explained how a diagnosis and prognosis in some septic conditions should be made.

Dr. Summer's talk was received with much in-

terest and provoked quite a lengthy discussion led by Dr. R. P. Dorris, Jefferson City.

Dr. S. P. Howard, Jefferson City, gave a lecture on "Mastoid Abscess Following Infectious Diseases," explaining the different subjective and objective symptoms, and treatment. Dr. Howard's lecture was followed by a lengthy discussion.

The visiting doctors were given a vote of thanks for the scientific program rendered and the new life they put into the Society.

The Society invited Dr. W. A. Clark, Jefferson City, to deliver a lecture on "Medical Legislation and What Organized Medical Fraternity Means to the Laity," at our next meeting at Hermann. Dr. J. S. Summers, Jefferson City, was invited to demonstrate the making of blood stains, blood counts and blood tests.

The Society adjourned to meet at Hermann on June 20, 1929, at 2:00 p. m.

W. R. FERRELL, M.D., Acting Secretary.

GRUNDY COUNTY MEDICAL SOCIETY

The Grundy County Medical Society met in the Trenton Trust Building, Trenton, March 5, 1929. The scientific program was given by Drs. O. R. Rooks and E. A. Duffy, Trenton.

Dr. O. R. Rooks read an interesting paper on "Some Points of Liver Function."

Dr. E. A. Duffy reported a case of typhoid fever with two relapses. The papers were discussed by all members present.

Meeting of April 3, 1929

The Society met on April 3, 1929, in the Trenton Trust Building, Trenton.

Dr. E. C. Ambrose, Trenton, read an instructive paper on "Vertigo." This interesting paper was discussed by all present.

Meeting of May 7, 1929

At the meeting of May 7, 1929, held in the Trenton Trust Building, Trenton, the following program was given.

Dr. J. E. Neely, Trenton, read a paper on "Eye Strain."

Dr. Wm. A. Fuson, Trenton, gave an address on "Undulant Fever." These papers were very interesting and discussed by all the members present.

E. A. DUFFY, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held their regular meeting May 7, 1929, at 8:00 p. m. in the Joplin Y. M. C. A. rooms with Dr. E. D. Hatcher, Carthage, presiding. There were twelve members present. The minutes of the last meeting were read and approved.

It was moved and seconded that the Secretary, Dr. H. L. Wilbur, Joplin, confer with the prosecuting attorney in regard to some of the advertising quacks of the city. Motion carried.

On motion, seconded and carried, the Society endorsed the proposal of a Medical Arts Building.

Dr. W. S. Loveland, Joplin, reported the case of a man who had been struck in the face by a board in which there was a nail that perforated the antrum and caused the tissues of the right cheek to be filled with air.

Meeting of May 21, 1929

The Society met May 21, 1929, at 8:00 p. m. at the Joplin Y. M. C. A. Building, Dr. E. D. Hatcher, Carthage, presiding. There were twenty-one members and five visitors present. The minutes of the last meeting were read and approved.

The board of censors reported favorably on the application of Dr. V. E. Kenney, Joplin, and on ballot he was elected to membership.

Dr. Clinton K. Smith, Kansas City, was introduced and gave an instructive talk on "The Treatment of Gonorrhea and Its Complications." The subject was thoroughly discussed.

Meeting of May 28, 1929

The Society met at 8:00 p. m. in the Joplin Y. M. C. A. rooms with Dr. E. D. Hatcher, Carthage, in the chair. The minutes of the last meeting were read and approved. There were twenty-three members and seven visitors present.

The members agreed to suspend the meetings of the Society during the summer months after the next regular meeting on June 11. The president appointed Drs. L. C. Chcnoweth, C. C. Cummings, and H. L. Wilbur, of Joplin, to arrange for a banquet for members and their wives on June 11.

Dr. Donald R. Black, Kansas City, talked on "The Anemias." He gave a very thorough discourse on the formation of the blood cells and the use of liver feeding in these cases.

Dr. J. G. Montgomery, Kansas City, talked on "Differential Diagnosis of the Acute Upper Abdomen" using lantern slides to illustrate his subject.

Both papers were discussed by the members present.

H. L. WILBUR, M.D., Secretary.

THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of March 15, 1929

REVIEW OF THE PROGRESS OF UROLOGY IN CHILDREN.—By DR. CLINTON K. SMITH.

Urology in children has not kept pace with the progress of urology in general. Beer, in 1907, first made use of the cystoscope in children under five years of age. The next step was an improvement made by Butterfield in 1924. Opposition to cystoscopy in general and particularly when applied to children has retarded the progress of urology in children. Most of the recent literature has centered about pyelitis, and it has been shown that congenital defects often play a role therein. Malformations were found in 23 per cent of cases of children posted. The commonest malformation is ureteral stricture, probably due more often to a congenital affair than to focal infection. Other lesions investigated in children are bladder tumor which is rare, renal tuberculosis which is not as uncommon as was once thought, and urinary calculi. All children with pyelitis, dysuria and hematuria should be X-rayed.

DISCUSSION

DR. NELS OCHERBLAD: In February, 1929, I cystoscoped three girls aged 10, 16, and 5 years, under local anesthesia without difficulty. Stones of the bladder or kidney are not uncommon in children. One boy with strangury and a discharge was diagnosed gonorrhea in the outpatient department, and later found to have a streptococcic infection and a stone the size of an egg in his bladder. Another boy aged 19 had severe hematuria. He was found to possess two large ureters and renal pelvises. Sounds had been passed since childhood. He had a bilateral congenital lesion at the ureteral orifices.

DR. R. LEF HOFFMANN: I wish to emphasize the fact that it is possible and safe to proceed with

the examination of children as in the examination of adults.

DR. SMITH, in closing: I am afraid the impression prevails with some practitioners that when a child is referred to a urologist for consultation the first thing on the program is a cystoscopic examination. The reverse is really true. Cystoscopy in children, as in adults, should be done only to confirm or deny clinical deductions. I have observed cases as long as five months before obtaining the clue indicating cystoscopic verification.

SOME UROLOGICAL PROBLEMS AS SEEN BY A GENERAL SURGEON.—

By DR. B. L. MYERS.

Case 1. Girl, aged 18. Two years ago began having recurrent attacks of nausea, vomiting, chills, pain at right lower abdomen, pain referred to the right shoulder and the sensation of a full bladder. Polymorphonuclear blood cells 94 per cent. Appendectomy during an acute attack with no subsequent relief. Urine 2 plus albumin, 1 plus pus cells and 1 plus red cells. Later, X-ray showed small stone in lower right ureter. Treatment: Ureteral meatus dilated through cystoscope and stone was passed within thirty-six hours. Stones usually lodge at the pelvic brim or ureterocystic juncture. They may be confused with appendoliths, and the shadow catheter helps in diagnosis.

Case 2. Man, aged 50. Recurrent attacks of low abdominal pain, urinary retention, tenesmus and frequency for ten years. Urine cloudy, trace albumin, pus cell count 4,000. Bladder contained 13 cc. residual urine. N. P. N. 17.6. With bladder stone there is usually much pain and the frequency is diurnal. It is nocturnal in prostatic hypertrophy. X-ray showed two bladder stones. Patient's bladder was quite sensitive to cystoscopy and infected, and treatment of 10 per cent argyrol instillations was given but the condition grew worse. Diathermy decreased the urinary cell count from 5,600 to 790 within eight days. The stones were removed with local anesthesia by suprapubic cystotomy.

Case 3. Man, aged 72. Hypertrophied prostate and 700 cc. residual urine. Suffered "catheter chill" while undergoing slow reduction of bladder urine and had anuria for fourteen hours thereafter. Temperature 102; blood-pressure dropped from 140 to 95. Heat, hypodermoclysis, coffee, and ephedrin were given and patient finally recovered. Anuria is dangerous, is often accompanied by a drop in blood-pressure and should be anticipated in cases with "catheter chill."

Case 4. Man, aged 60. Prostatic hypertrophy. Had retention and renal insufficiency; urine specific gravity 1,004 and N. P. N. over 50 consistently. Prostatectomy under ethylene anesthesia. Severe postoperative shock requiring blood transfusion. Three days later his right foot became gangrenous. X-ray showed calcified leg arteries. Amputation of leg necessary. The operation was done satisfactorily under spinal anesthesia.

Case 5. Woman, aged 31. Had diverticulum of the bladder, diagnosed and treated as cystitis for nine years. It is rare in women. Had suffered since childhood with frequency, burning, and cloudy urine. During irrigation it was noted that at times more water was recovered from the bladder than was injected, and sometimes less. The diverticulum was removed by Dr. Mark.

DISCUSSION

DR. MAX GOLDMAN: Patients presented under the diagnosis of chronic appendicitis should have the

benefit of X-ray and urological examinations. In ureteral stones I favor the use of the Kelly ureteral dilator with the patient in the knee-chest position. In patients with bladder stones unless the bladder has been rendered too irritable for cystoscopic manipulation, the lithotribe can be successfully used in preference to suprapubic cystotomy.

DR. C. K. SMITH: I was especially interested in the results with diathermy in the case of bladder infection with stones. I am inclined to believe that the prostate may have been the offender as it is almost constantly involved in infection with vesical calculi. I have had some few happy results with diathermy in prostatitis.

DR. MYERS, in closing: Diathermy is good for infected bladder with stones, but I have not been satisfied with it (as a palliative agent) in most cases of prostatitis.

Meeting of March 29, 1929

SOME PRACTICAL QUESTIONS RELATING TO HUMAN HYPERSENSITIVENESS.—By DR. A. F. COCA.

There is skepticism regarding modern methods of diagnosis and treatment of human hypersensitivity. This is largely due to differences of opinion among specialists in this field concerning the theory and practice of these methods. The situation is comparable to that which confronted pioneers in the field of pathogenic bacteriology. The clinical results obtained with modern methods of handling hypersensitivity are often disappointing. The best results are obtained by those best informed of the fundamental etiological factors, the technique of available diagnostic methods, and the peculiarities of the specific mechanism responsible for the symptoms in hay-fever, asthma, and eczema.

The most important etiological factor in hay-fever, asthma, and eczema is that of heredity (R. A. Cooke and associates; June Atkinson; Ray M. Balyeat). This factor is not operative in sensitivity to tuberculin, nor that of specific dermatitis as in "ivy poisoning." Tuberculin sensitivity depends on infection with the tubercle bacillus. Of the white population 60 per cent are sensitive to toxico-dendron radicans and this percentage holds good also among individuals subject to hay-fever or asthma.

The hereditary factor in atopic hypersensitivity (asthma, hay-fever and eczema group) determines the incidence of hypersensitivity in the offspring of hypersensitive parents. If both parents are affected about 70 per cent of the offspring will be affected. If only one parent is hypersensitive, 58 per cent of the offspring are affected. Of non-hypersensitive parents, less than 2 per cent of the offspring are affected.

The age of onset of hypersensitivity is also determined by inheritance. Under a bilateral influence, 72 per cent of the hypersensitive offspring will show symptoms by the tenth year; if only one parent is affected, 35 per cent, and if neither parent is hypersensitive, 17 per cent of the hypersensitive offspring show symptoms by the tenth year.

The substances to which the individual is sensitive is determined by inheritance and Balyeat found that the stronger the hereditary factor the greater the tendency to multiple sensitivity.

The clinical character of the hypersensitivity is also subject to hereditary influence. A pure asthmatic familial line is more likely to be continued in asthma than in hay-fever and vice versa.

Secondary to the hereditary factor is the contact factor. Europeans potentially sensitive to rag-

weed do not show this sensitiveness until after contact with ragweed pollen. In this country it has been found that about one-fourth of all timothy sensitive individuals are also sensitive to ragweed. In Europe, where timothy hay-fever occurs, one quarter of such subjects can be considered potentially sensitive to ragweed which does not grow there. Cutaneous tests among such subjects in Berlin yielded only one out of thirty-six sensitive to ragweed in an individual that had been in America. Contact alone is not a determining factor because the most common excitants of atopic hypersensitiveness are the poorest antigens in the lower animals, that is, the pollen and cereal excitants, fish glue, orris and house dust. Furthermore, although Matthew Walzer has shown that undigested proteins regularly pass into the blood through the alimentary tract in 90 per cent of normal human beings, hypersensitiveness develops in very few and usually in atopic families.

The two chief diagnostic tests are the cutaneous and the ophthalmic. Of the two cutaneous tests, the intracutaneous is superior to the scratch method because it is less painful, more rapid, and is indispensable in the quantitative testing in hay-fever.

An objection against the intracutaneous method is the frequent occurrence of nonspecific reactions. The cause is usually the injection of too large volumes of fluid. Not more than 0.02 to 0.03 cc. should be injected. Some European specialists inject as much as 0.1 cc., thus obtaining large numbers of nonspecific reactions from such materials as human dander and certain moulds. The proper use of the intracutaneous method is attained only after considerable experience. Tests with commercial powders are in certain categories often negative in clinically sensitive people. A useful method applicable in children is that of indirect testing (Matthew Walzer). One twentieth or one tenth of a cubic centimeter of serum of the hypersensitive child is injected intracutaneously into a number of sites on the arms and legs of a relative. The reactions obtained in these sites after 24 hours by intracutaneous injection of fluid extracts are practically always specific.

The ophthalmic reaction is highly specific and in some instances is more important than the skin reaction, particularly when an individual is tested after having received an injection of therapeutic horse serum previously. The skin reaction to horse serum may be positive in 20 per cent of such individuals, but the ophthalmic reaction with horse serum is negative. Dr. W. H. Park has shown that there is usually no constitutional sensitiveness to the horse in such individuals.

The mechanism of atopic hypersensitiveness has been found in a sensitizing substance in the blood of every case of hay-fever and in many cases of asthma and eczema. These bodies, called atopic reagents, are different from ordinary antibodies. The human may be induced to produce ordinary antibodies, precipitates and anaphylactic antibodies, but these individuals need not be subject to clinical hypersensitiveness. Thus far sensitizing reagents have been found only in humans. They differ from anaphylactic antibodies in the following way: Reagents sensitize the human skin but not the unstripped muscle of the guinea pig, whereas anaphylactic antibodies sensitize unstripped muscle but not human skin. Anaphylactic antibodies neutralize their respective antigens; atopic reagents do not. This explains why a small quantity of the excitant of hay-fever can be transported from the site of its

cutaneous injection through the blood in spite of the great quantity of reagents present, and produce a constitutional reaction in the sensitive tissues. The more reagents there are in the blood the less excitant is needed to cause a constitutional reaction.

There are three kinds of reaction to horse serum: (1.) In horse asthmatics,—the most dangerous (atopic) sensitiveness to the serum. Reagents are present in such individuals and both the ophthalmic and skin reactions are positive. If the ophthalmic test of one drop of 1-10 horse serum is negative this form of hypersensitiveness is not present even if the skin test is positive. Horse serum may be administered without hesitation. (2.) Ordinary serum disease occurs in 90 per cent of white individuals that have received horse serum intravenously. This is seldom dangerous. There is no test available that will indicate when "immediate reactions" may occur. They are less likely after subcutaneous reinjection, but when the reinjection of a therapeutic serum is urgently indicated the possibility of this unusual reaction must be disregarded. Desensitization is impracticable in such cases. (3.) The "foreign protein reaction," about which nothing is known, may follow a primary intravenous injection in a person whose ophthalmic and skin reactions are completely negative. They rarely terminate fatally. Since there is no way of anticipating them, they cannot be taken into consideration as contraindicating the administration of urgently needed therapeutic serum.

DISCUSSION

DR. W. W. DUKE: Does treatment with pollen alter the reagents?

DR. D. D. STOFER: Can a patient be desensitized to horse serum by gradually increasing doses as is done in cases of hay-fever?

DR. HARRY BERGER: What do you think of the routine administration of toxin-antitoxin for immunization of children that are sensitive to horse serum?

DR. COCA, in closing: Answering Dr. Duke's question, No. Treatment in a few cases increased the reagents. It never diminishes them.

In reply to Dr. Stofer, a maximum is secured in most groups sensitive to horse serum only after fifteen doses have been given at weekly intervals and this maximum is far less than a therapeutic dose of antitoxin.

In answer to Dr. Berger's question I would say that .2 cc. toxin-antitoxin may be safely given even to an asthmatic child and repeated weekly, increasing .3 cc. per dose. If a child is known to be sensitive to horse serum and the intradermal skin test with the toxin-antitoxin produces no wheal, 1 cc. can be safely given.

CLINICAL PRESENTATION OF CUTANEOUS MANIFESTATIONS OF SYPHILIS.—By DR. P. F. STOOKEY.

The question has frequently come up as to why so many women have syphilis without any knowledge of infection. In 1927 I reported nine cases of chancre of the cervix, calling attention to the fact that bubo was not necessarily present since lymphatic drainage of the cervix is into the pelvic glands. Recently we have found that there is nothing typical in the appearance of a primary lesion of the cervix in women, but that cervical enlargement which may be as much as three times normal size is one of the striking characteristics and justifies the use of the dark field. In a series

of cases studied, *Spirochaeta pallida* were demonstrated from cervixes of women, 5 per cent of which had typical Hunterian lesions, 5 per cent diphtheroid lesions, and 20 per cent no demonstrable abrasion whatever. In the latter group, positive dark fields were obtained with material secured from submucosal layers at many points of the cervix.

NODAWAY COUNTY MEDICAL SOCIETY

Immediately after the adjournment of the monthly staff conference at St. Francis Hospital, Maryville, May 10, 1929, the Nodaway County Medical Society met in the first-floor lecture room of the hospital. In the absence of the acting president, Dr. Leslie E. Dean, Maryville, the meeting was called to order by the secretary, Dr. Chas. D. Humbert, Barnard, at 7:45 p. m. The minutes of the regular meeting of April 12 were read and approved.

Drs. Ralph W. and Walter F. Holbrook, of Kansas City, were present as invited guests of the Society through the courtesy of the Kansas City Southwest Clinical Society.

The secretary read a telegram from Dr. E. J. Goodwin, St. Louis, Secretary of the State Medical Association, asking the Society to send a protest to our representative, Honorable William Job, Maryville, against the adoption of Senate Bill No. 615, which if passed would allow osteopaths to administer narcotics. The Society wired a protest to Representative Job.

The secretary read a letter from the American Medical Association requesting the Society to wire Congressman David Hopkins a protest against the adoption of an increased tariff on surgical instruments. A protest was sent in accordance with the Association's recommendations.

The acting president, Dr. Leslie E. Dean, Maryville, having arrived during the meeting, read telegrams which he had received similar in tenor to those received by the secretary.

The following topics were suggested for consideration at the next meeting on Friday, September 13: Serums, public health, fear and worry, varicose veins, renal calculi, prostatic hypertrophy, alopecia and acute laryngitis.

Dr. Walter F. Holbrook, Kansas City, gave an extemporaneous talk on "Jaundice," with especial attention to the surgeon's views of subacute cholecystitis, although he touched upon nonsurgical, transduodenal biliary drainage. He illustrated his remarks with blackboard sketches and held his audience to close attention.

Dr. Ralph W. Holbrook, Kansas City, discussed virtually the same topic from the attitude of the internist. He paid more attention to the accompanying duodenitis in gallbladder affections than is usual in such papers, which is a new and valuable idea to most of our members. He pointed out that the good results seen after the use of a Reyfuss bucket in gallbladder disease are largely the beneficial effects on the duodenitis of the saline administered. He also spoke briefly on "Ulcerative Colitis," "Colonic Irrigation," and on "Carcinomatosis."

These papers were freely discussed and numerous questions were asked.

A vote of thanks was extended to the Doctors Holbrook for their kindness in making the long trip to address the Society.

The following members were present: Drs. Chas. T. Bell, K. C. Cummins, C. P. Fryer, R. C. Person, H. S. Rowlett, F. M. Ryan, F. C. Wallis and W. M.

Wallis, Jr., of Maryville; Dr. Chas. D. Humbert, Barnard.

The meeting adjourned, without form, at 10:20 p. m.

CHAS. D. HUMBERD, M.D., Secretary.

ST. LOUIS MEDICAL SOCIETY

Meeting of the Council, February 13, 1929

The meeting was called to order at 8:10 p. m. by the president, Dr. Cleveland H. Shutt.

A letter from Reverend A. M. Schwitalla in regard to a joint celebration with St. Louis University and Washington University in honor of Dr. Joseph Grindon was read. On motion of Dr. John Green, seconded by Dr. R. B. H. Gradwohl, it was decided that the Society would cooperate with the two universities in this celebration, and the president was empowered to appoint a member of the Society to confer with representatives of the two schools.

Resignations from corresponding membership of Drs. J. J. Reilly and Lester B. Evans were read and on motion of Dr. John Green, seconded by Dr. F. J. V. Krebs, the resignations were accepted.

The following were elected to membership: Active, Alfred O. Adams, Beaumont Bldg.; James Barrett Brown, 400 Metropolitan Bldg.; Maurice L. Greene, 314 Metropolitan Bldg. Junior, Robert Henry Riedel, Missouri Pacific Hospital; Myron C. Tank, City Hospital.

The applications of Dr. Frederick A. Jostes, by transfer from the Boone County Medical Society, and Dr. Glenn R. Northup, by transfer from the Jefferson County Medical Society, were read for the first time.

The report of the necrology committee was read by the secretary, and on motion of Dr. John Green, seconded by Dr. W. C. G. Kirchner, the report was received and the committee was authorized to wear small suitable ribbons as official representatives of the Society at funerals of members.

Dr. C. F. Pfingsten read the report of the treasurer for January.

Dr. Kirchner moved that the report be received and published in the Bulletin. Seconded by Dr. R. B. H. Gradwohl. Carried.

Dr. Amand Ravold moved that the president be empowered to appoint a committee to outline plans and devise ways and means of raising funds outside of the membership for the employment of an executive secretary. Seconded by Dr. E. C. Funsch. Carried.

On motion of Dr. F. J. V. Krebs, seconded by Dr. John Green, it was decided that the Council favor the employment of an executive secretary when the above funds are available.

Dr. Ravold moved that the committee on revision of constitution and by-laws be instructed to consider the following amendment to the by-laws in order to make the Society an educational institution and thereby exempt from taxation:

"That the library and reading rooms of the Society be open to use of the public, subject to such rules and regulations as the Council may from time to time adopt and subject to the payment of such nominal and reasonable fee for the use of said library as may be approved by the Council."

The following special smoke abatement committee was recommended by the president: Dr. Jerome E. Cook, Chairman; Drs. Paul Murphy, Eugene S. Auer and Eugene L. Broecker. On motion of Dr. Roland S. Kieffer, seconded by Dr. E. C. Funsch, the above committee was approved.

The president recommended the appointment of a special attendance committee as follows: Dr. Wil-

liam G. Becke, Chairman; Drs. Victor F. Kloepper, August G. Wichman, George Godfrey, August Dutzi, L. G. McCutchen, Frank J. Hellrung, Joseph F. Bredeck, Oliver Abel, Jr., Lee D. Cady, J. J. Burdick, Arthur Strauss, Grace S. Mountjoy and Henry Schulz. Dr. Funsch moved that the attendance committee be approved. Seconded by Dr. John Green. Carried.

The report of the membership drive committee was read and on motion of Dr. Funsch, seconded by Dr. Green, the report was received with a provision that at all times the use of the building was subject to the control of the Council.

A letter from Dr. Emil Burst relative to a change in the state law pertaining to the office of coroner was read and on motion of Dr. E. C. Funsch, seconded by Dr. Roland S. Kieffer, the letter was referred to the committee on health and public instruction.

An application for corresponding membership from Dr. A. H. Maeys, of Maeystown, Illinois, was presented, and referred to the membership committee.

Dr. John Green moved that the membership drive committee be authorized to determine ways and means of encouraging members, belonging to other societies and living close to St. Louis, to become corresponding members of the St. Louis Medical Society. Seconded by Dr. E. C. Funsch. Carried.

On motion of Dr. Roland S. Kieffer, seconded by Dr. Funsch, the question of afternoon meetings was referred to the special attendance committee for a canvass of the membership.

Special Meeting of Council, February 27, 1929

The meeting was called to order at 8:30 p. m. by the president, Dr. Cleveland H. Shutt.

Dr. John Green moved that the president be authorized to obtain an opinion from our legal adviser as to whether the by-laws give the Council the right to appoint committees of the Society, and if a charge of less than \$25 is made for this opinion that the councilors voting favorably would pro rate the expense. However a charge of more than \$25 is not to be authorized. Seconded and carried.

Adjournment 10:30 p. m.

Meeting of the General Society, March 5, 1929

The meeting was called to order at 8:33 p. m. by the president, Dr. Cleveland H. Shutt.

The following scientific program was given by the Trudeau Club.

"Recent Diagnostic Methods in Tuberculosis," Dr. J. J. Singer.

"Tuberculosis in Children," Dr. T. C. Hempelmann.

Dr. Morfit moved that the unanimous consent of the Society be given to have the special order of business, which had been scheduled for nine o'clock, taken up immediately following the scientific program. Seconded by Dr. Schisler. Dr. Pernoud objected.

The motion of Dr. Schlueter was then read. Also a letter to Dr. Shutt giving the legal opinion of Mr. Morton Jourdan. The opinion of Mr. Benjamin Charles was given verbally by Dr. Shutt.

Dr. Ravold moved, seconded by Dr. Gradwohl, that the motion be laid on the table. Carried unanimously.

The scientific program was continued as follows: "Medical Treatment of Pulmonary Tuberculosis," Dr. J. F. Bredeck.

"Surgical Treatment of Pulmonary Tuberculosis," Dr. Evarts Graham.

"Heliotherapy in the Treatment of Tuberculosis," Dr. Seelig Simon.

"Home Care of the Tuberculous," Dr. Howard Bell.

Discussion by Drs. Louis C. Boisliniere, H. I. Spector; Dr. Simon closing.

Dr. Boisliniere announced that the National Tuberculosis Society would hold a campaign for earlier diagnosis of tuberculosis, beginning March 15, and he moved that the Society go on record endorsing the campaign of the National organization. Seconded by Dr. Singer and carried.

Attendance 243.

Meeting of March 12, 1929

The meeting was called to order at 8:40 p. m. by the president, Dr. Cleveland H. Shutt.

The following scientific program was given:

"The Movable Kidney: Its Reality; Its Menace to Health; Its Curability," with lantern slide demonstration, Dr. Bransford Lewis.

Dr. D. N. Eisendrath, Chicago, was introduced by Dr. H. J. Scherck and presented a paper, illustrated with lantern slides, on "The Diagnosis and Treatment of Cystitis."

Discussion by Drs. H. J. Scherck, D. K. Rose, C. E. Burford and Otto J. Wilhelmi, with lantern slides; Dr. Lewis closing.

Dr. Lewis moved that the by-laws be suspended and that Dr. Eisendrath be made an honorary member of the Society. Seconded by Dr. Henrietta A. S. Borck and carried.

Dr. C. H. Shutt announced that Dr. E. H. Johnson had donated to the library a textbook on "Observations on the Air and Epidemic Diseases," Volume II, 1767, by Dr. John Huxham.

Attendance 136.

Meeting of the Council, March 13, 1929

The meeting was called to order at 8:30 p. m. by the president, Dr. Cleveland H. Shutt.

The following were elected to membership: Active: Drs. Clyde O. Brown, 201 Humboldt Building; Edward H. Gibbons, 3102 S. Grand Boulevard; Albert J. Griot, 3109 S. Grand Boulevard. Junior: Drs. Paul T. O'Keefe, St. Anthony's Hospital; Henry Francis Strub, 3531A Delor Street. Corresponding: Dr. A. H. Mayes, of Monroe County (Illinois) Medical Society; Dr. Charles E. Molden, of Madison County (Illinois) Medical Society.

Dr. C. H. Neilson moved that a letter be sent to the Committee on Ways and Means of the House of Representatives protesting against an increase in duty on surgical instruments. Seconded by Dr. E. C. Funsch and carried.

The treasurer's report for February was read by the secretary and on motion was received.

The report of the Committee on Health and Public Instruction was read by the secretary. On motion the committee requested to present resolutions pertaining to Senate Bill No. 407, creating a state department of mental diseases, for action of the General Society.

A letter of thanks was ordered sent to Drs. A. H. Diehr and T. C. St. John for their services in operating the lantern during the past two years and in emergencies during the present year, also for their willingness to serve in emergencies in the future.

The applications of Drs. F. A. Jostes and Glenn R. Northup by transfer were read for the second time and on motion of Dr. E. C. Funsch, seconded by Dr. J. F. Hardesty, both were elected to active membership.

The president recommended the following additional names for the special membership drive committee: Drs. T. R. Ayars, Florence H. Bullis, J. J. Burdick, Grayson Carroll, James B. Costen, F. H.

Ewerhardt, Raymond C. Fagley, M. L. Heideman, Paul M. Loewenstein, Henry P. Thyn, V. V. Wood, Oscar C. Zink.

On motion of Dr. J. F. Hardesty, seconded by Dr. John Green, these appointments were approved.

Dr. C. H. Shutt presented a copy of the opinion of Mr. Morton Jourdan in regard to the legal construction of Chapter 5, Section 1, of the by-laws, which was requested by the Council at its meeting on February 27. On motion the copy was received.

Meeting of the General Society, March 19, 1929

The meeting was called to order at 8:30 p. m. by the president, Dr. Cleveland H. Shutt.

The following specimens were presented by Dr. Charles L. Klenk for the Deaconess Hospital: "Osteosarcoma of Femur"; "Renal Calculi Filling Entire Kidney"; "Cauliflower Carcinoma of Pylorus"; "Ulcer of Stomach"; "Melanosarcoma of Brain With Metastasis of Liver and Kidney"; "Tuberculosis of Spleen."

Dr. Samuel E. Peden reported a case of "Anaphylaxis With Bullous Urticaris" and his treatment of same.

The regular scientific program follows:

"The Place of Physiotherapy in the Treatment of Disease," Dr. F. H. Ewerhardt.

"The Application of the Ultraviolet Ray in the Practice of Pediatrics," Dr. Jules M. Brady.

"Observations From 20,000 Light Treatments of Approximately 250 Patients at Koch Hospital," Dr. George D. Kettlekamp.

Discussion by Drs. M. F. Arbuckle, Henrietta A. S. Borck, Lawrence Schlenker; Drs. Ewerhardt and Brady closing.

Dr. Vosburgh moved that the Society authorize the Council to purchase the necessary equipment to preserve and exhibit the books, manuscripts and prints recently donated to the St. Louis Medical Society by the late Dr. James Moores Ball. Seconded by Dr. A. H. Diehr and carried.

Attendance 138.

Meeting of March 26, 1929

The meeting was called to order at 8:30 p. m. by the president, Dr. Cleveland H. Shutt.

Mr. H. Van Y. Caldwell, executive secretary of the Cleveland Academy of Medicine, was introduced by Dr. Charles Hugh Neilson and gave a talk on "The Work of a Medical Society Executive Secretary."

Mr. Wm. J. Burns, executive secretary of the Toledo Academy of Medicine, was introduced by Dr. Wm. H. Olmsted and spoke on "The Work of a Medical Society Executive Secretary With Special Reference to Public Instruction," "The Conduct of a Physicians' Service Bureau," and other interesting topics.

Discussion by Drs. Cleveland H. Shutt, Amand Ravold, John Green, Henrietta A. S. Borck, Wm. G. Patton, M. J. Bierman, Benjamin F. May, George H. Mathae, Grayson Carroll, R. B. H. Gradwohl; Mr. Caldwell and Mr. Burns closing.

A rising vote of thanks was tendered both essayists and their respective societies for permitting them to appear before our Society.

Attendance 131.

Meeting of April 2, 1929

The meeting was called to order at 8:40 p. m. by the president, Dr. Cleveland H. Shutt.

The following scientific program was given:

"Basal Metabolism in Pulmonary Tuberculosis," Dr. Alphonse McMahon.

"Early Diagnosis of Hyperthyroidism," Dr. Anthony B. Day.

"The Surgical Management of Hyperthyroidism," Dr. E. V. Mastin.

"Infection as an Etiological Factor in Thyrotoxicosis," Drs. Nathan Womack and Warren H. Cole.

Discussion by Dr. Henrietta A. S. Borck.

Dr. F. G. Pernoud moved that the Society commend the Council upon the adoption of a proposal to employ an executive secretary, without placing any additional salary burden for the purpose upon our Society, for a trial period of three years. Seconded by Dr. R. B. H. Gradwohl. Carried.

Dr. Gradwohl, having voted in the negative, moved that Dr. Pernoud's motion be reconsidered.

This motion was seconded but lost on vote.

Attendance 164.

Meeting of April 9, 1929

The meeting was called to order at 8:35 p. m. by the president, Dr. Cleveland H. Shutt.

The scientific program was as follows:

"The Diagnosis of Sporadic Infectious Mononucleosis," Dr. Lee D. Cady.

"Diagnostic and Prognostic Value of the 'Schilling' Differential Blood Count," Dr. R. B. H. Gradwohl.

Dr. Louis H. Behrens was appointed acting chairman in the absence of the president who was called from the meeting.

Dr. Norvelle Wallace Sharpe announced that Colonel George A. Skinner of the 7th Army Corps Area was present, and moved that the privileges of the Society be extended to the Colonel whenever he is in the city. Seconded and carried.

The scientific program was continued with a discussion of Dr. Gradwohl's paper by Drs. Henrietta A. S. Borck and Joseph F. Bredeck; Dr. Gradwohl closing.

"Radiotherapy in the Leukemias," Dr. Edgar W. Spitzig.

Discussion by Dr. Edwin C. Ernst.

"Splenomegaly With Anemia in Adults: The Surgical Treatment," illustrated with lantern slides, Dr. John McH. Dean.

Discussion by Dr. Louis H. Behrens.

Attendance 224.

Meeting of April 16, 1929

The meeting was called to order at 8:30 p. m. by the president, Dr. Cleveland H. Shutt.

A case of "Pituitary-Thyroidism," illustrated with lantern slides, was presented by Dr. Dan L. Sexton.

The following scientific program was given:

"The Effectiveness of Immunization to Diphtheria by Toxin-Antitoxin," illustrated with lantern slides, Dr. Jean V. Cooke.

"The Indications and Results of Splenectomy in Childhood," Dr. M. B. Clopton.

"Some Developments in Infant Feeding," Dr. McKim Marriott.

"Chemical Changes in the Body Due to Loss of Gastro-Intestinal Secretions"; (a) "Collection and Composition of Normal Secretions of the Dog," illustrated with lantern slides, Dr. Robert Elman. (b) "Results of Loss of Gastro-Intestinal Secretions—Clinical Applications," illustrated with lantern slides, Dr. A. F. Hartmann.

"Aortic Insufficiency in Childhood," Dr. Hugh McCulloch.

Discussion by Dr. Henrietta A. S. Borck; Drs. Marriott and Hartmann closing.

Attendance 209.

Meeting of April 23, 1929

The meeting was called to order at 8:33 p. m. by the president, Dr. Cleveland H. Shutt.

Dr. Louis Rassieur presented a case of "Hemo-

lytic Icterus," with patient and lantern slide demonstration.

The following scientific program was given:

"Lantern Slide Demonstration of Types of Goiter," Dr. William D. Collier.

Discussion by Dr. Paul S. Loewenstein and Dr. Willard Bartlett, Jr., with lantern slides; Dr. Collier closing.

"Common Pitfalls in Obstetrics," Dr. Edgar F. Schmitz.

Discussion by Dr. Walter Eyermann; Dr. Schmitz closing.

"A Physiological Method of Treatment of Accidental Wounds," Dr. Walter R. Hewitt.

Discussion by Drs. Bransford Lewis and Norvelle Wallace Sharpe; Dr. Hewitt closing.

"Filariasis of the Scrotum," illustrated with lantern slides, Dr. Otto J. Wilhelm.

Discussion by Dr. Claude D. Pickrell; Dr. Wilhelm closing.

The president announced that Dr. Grindon's Guest Book was available in the secretary's office for the signatures of those who had participated in the Golden Jubilee and had not signed as yet.

The president also announced that the special membership drive committee would circularize the membership, sending each member a letter and two application forms, and he requested the members to urge the eligible physicians whom they know to become members of the Society.

Meeting of April 30, 1929

The meeting was called to order at 8:35 p. m. by the president, Dr. Cleveland H. Shutt.

The following scientific program was given:

"Limitations of Cesarean Section," Dr. Quitman U. Newell.

"Rectal Analgesia in Labor," illustrated with lantern slides, Dr. Samuel F. Abrams.

"Scopolamin-Morphin Semi-Narcosis," illustrated with lantern slides, Dr. Otto S. Krebs.

"Resuscitation of the New-Born," illustrated with lantern slides, Dr. Richard Paddock.

Discussion by Dr. Fred Emmert, with lantern slides, and Drs. Henrietta A. S. Borck, Otto H. Schwarz, Hugo Ehrenfest, M. B. Davis; Drs. Newell, Abrams, Krebs and Paddock, closing.

Attendance 152.

HERBERT S. LANGSDORF, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held in the First Congregational Church of Webster Groves, Wednesday afternoon, May 8, 1929. The meeting was called to order by the vice president, Dr. H. N. Corley, Webster Groves, at 3:15 p. m. with the following members present: Drs. H. N. Corley, C. P. Dyer, A. C. Hofsommer, C. C. Irick, W. F. O'Malley, and A. W. Westrup, of Webster Groves; Dr. F. P. Knabb, Valley Park; Drs. Garnett Jones, O. W. Koch, and Louis C. Obrock, of St. Louis; Dr. O. N. Schudde, Ferguson; Dr. J. H. Sutter, University City; Drs. L. W. Cape and E. E. Tremain, of Maplewood. Visitor: Dr. Helen Gage, Webster Groves.

The membership committee reported favorably on the application of Dr. Lewis A. Bradbury, U. S. Veterans' Hospital No. 92, Jefferson Barracks, and Dr. Bradbury was elected a member.

Dr. Charles F. Rosenberger, St. Louis, was elected to membership by transfer from the St. Louis Medical Society.

It was moved by Dr. W. F. O'Malley, Webster Groves, seconded by Dr. J. H. Sutter, University City, that the president appoint a permanent com-

mittee of five to meet with the county court at any time to act for the Society.

A talk by Mr. A. M. Shortal on the St. Louis Medical Bureau was very instructive.

E. E. TREMAIN, M.D., Secretary.

ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met June 26, 1929, at 7:00 p. m. Dinner was served by the hospital to the doctors and their wives, forty-five in all.

At the business session the following doctors were elected to membership: Dr. Clyde C. Winter and Dr. Katherine Krenning, of Farmington.

Dr. W. J. Bryan, Flat River, was elected by transfer from Lawrence-Stone County Medical Society.

Dr. Franklin R. De Honey, Flat River, was elected by transfer from Leavenworth County (Kansas) Medical Society.

Dr. R. B. H. Gradwohl, St. Louis, gave an illustrated lecture on the "Schilling Test." His talk was very instructive and appreciated by all present.

RALF HANKS, M.D., Secretary.

WOMEN'S AUXILIARY

OFFICERS 1928-1929

President, Mrs. Willard Bartlett, St. Louis.

President-Elect, Mrs. M. P. Ravenel, Columbia.

1st Vice President, Mrs. Harry F. Parker, Warrensburg.

2nd Vice President, Mrs. T. O. Klingner, Springfield.

3rd Vice President, Mrs. M. A. Hanna, Kansas City.

4th Vice President, Mrs. James F. Owens, St. Joseph.

Corresponding Secretary, Mrs. Theodore Pre-witt Brookes, St. Louis.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. W. H. Goodson, Liberty.

Auditor, Mrs. Vilray P. Blair, St. Louis.

Directors (2 years): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert M. Schaufler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs. (1 year): Mrs. C. T. Ryland, Lexington; Mrs. Frank Hinchey, University City; Mrs. H. A. Brierly, Peculiar; Mrs. C. M. Sneed, Columbia; Mrs. E. N. Chastain, Butler.

Notes

The scholarship founded by the Woman's Auxiliary at its Annual Meeting, May 14-15, 1929, of \$500 annually, to be given for two successive years to a student in the graduating class of the School of Medicine of the University of Missouri on the recommendation of the Committee on Awards, has been given to Edwin C. Schmidtke, Mt. Vernon. Mr. Schmidtke will enter the third year class at Washington University, St. Louis, the latter part of September. Mr. Schmidtke, in his letter of acknowledgment of the award, expressed great appreciation of the honor bestowed upon him and of the confidence placed in him by the Woman's Auxiliary. The Committee on Awards, in its report, stated that there were six high class students whose claims were carefully considered.

MISCELLANY

U. S. ARMY MEDICAL CORPS MODEL FOR THE CHINESE

National Headquarters was the recipient of a request during this past month, that redounded to its reputation in a country so far away as China, and to that of one of the institutions of our army, the Medical Corps. A letter came, headed in English type, from the Army Medical Corps, Staff Headquarters, Office of the Surgeon General, Nanking, China, and signed by Lieutenant. Col. Y. S. Lui, and written in good English, asking that the Association procure for them a long list of Medical Corps publications.

Through the courtesy of the Surgeon General's Office, U. S. Army, a considerable package of Regulations and Bulletins was assembled, including even more than the Chinese officer had requested, and especially directed to the care of troops in the field.

An interesting feature was the inclusion in the letter from China, of six slips of paper written in Chinese characters, all of which were to be pasted on the outside of the package, to afford, presumably, its quicker delivery in that country. The postal order forwarded for payment, cost \$6.80 in Chinese money, to give \$3.00 in American.

Speaking from a medical standpoint, this is but another example of the freedom with which medical men of character, all over the world, give out information tending to the benefit of humanity in general.

The Reserve Officer, April, 1929.

A MIDNIGHT CALL

One of our members in Saline County sends a clipping from the *Slater Rustler* which is such a vivid picture of a country practitioner's experience even in these days of automobiles and hard roads that we agree with our correspondent who thinks the item deserves "greater publicity." The item follows:

"The telephone rings at midnight and a sleepy voice answers 'All right.' Then the patient wife hears the grumbling doctor as he hurries into his clothes and galoshes, a door slams and the neighbors hear a rattle of chains, a muttered cuss word, the whir of a starter and the protesting sputter of a cold motor then a Ford roars out into the night over roads as slippery as the streets of Jerusalem were when Balaam passed that way, and the doctor is off on a night call.

A year and a half later the fellow who couldn't wait until morning to call the doctor comes in to pay the bill and makes an indignant protest because he has been charged a dollar extra over the day rate.

It's a great life and many people who use the back stretcher in the day time use the doctor at night regardless of the fact that a back bone is just as liable to slip out of place at night as it is in the day time and when one of the doctor's patients gets sick and is not well in two days they keep the telephone busy advising him to turn the doctor off and try the back stretcher.

But the old doctor grins and goes on for he knows he is not going to meet any of the chiropractors on their knees in a mud hole at midnight invoking the aid of Jehovah as he tries to wrap a chain around a mud caked casing. Under these conditions it is not surprising that the hard driving, hard grumbling, hard cussing, and hard headed old country doctor

often develops a homely philosophy of life that is shocking to the missionary society and causes his pastor to spend many sleepless hours in prayer for the salvation of his soul."

BOOK REVIEWS

TUBERCULOSIS AND HOW TO COMBAT IT. A Book for the Patient. By Francis M. Pottenger, A.M., M.D., LL.D., F.A.C.P., Monrovia, California. Second edition. St. Louis: The C. V. Mosby Company. 1929. Price \$2.00.

It is generally admitted that an intelligent understanding of the nature of the disease that one is trying to conquer is indispensable to recovery. Dr. Pottenger's book, which was primarily written for the patient will, therefore, prove to be not only invaluable to the sufferer from the disease but also to the physician treating tuberculosis.

The author endeavors to answer the numerous questions confronting the tuberculous patient in such a concise manner that even the technical phases of the subject appear simple and clear. While the subject is covered in a popular way there is, nevertheless, very little if any deviation from scientific facts.

Patients having tuberculosis and physicians treating this disease should be encouraged to possess a copy of this valuable little book. H. I. S.

TEXTBOOK OF CLINICAL NEUROLOGY. For Students and Practitioners. By M. Neustaedter, M.D., Ph.D., Visiting Neurologist, Central Neurological Hospital, Welfare Island, etc. With an introduction by Edward D. Fisher, M.D., Professor Emeritus of Neurology, University and Bellevue Hospital Medical College, New York. With 228 illustrations, some in colors. Philadelphia: F. A. Davis Company. 1929. Price \$6.00.

The reader finds a book of intermediate size, excellently prepared as to paper, typing and photographs. Its arrangement is at variance with the usual, occupying a position about midway between the classic textbooks of neurology and that of the "presenting-symptom" arrangement of Purves-Stewart and Dejerine. Based fundamentally on anatomical structures, it yet attempts to describe syndromes as they appear to the medical examiner. Under each disease heading comes the usual formula of symptoms, etiology, pathology, etc.

The book warrants an acceptance as a work essentially the expression of the author's extensive clinical experience; there are no bibliographies, and infrequent references to sources. The photographs, both of clinical cases and of pathological sections are of superior type; nearly all show clearly the point it is desired to make. The attempt to make pathology an integral part of clinical neurology is commendable. No attempt is made to discuss psychiatry; one might wish that more of the dynamic concepts of psychiatry were introduced even in a discussion of organic neurology; and particularly in the chapter on the neuroses.

The criticism must be raised as to whether there is justification for new books that are not exhaustive, and which do not present material the major portion of which must be known to any trained neurologist. However, personal research of the writer on poliomyelitis and encephalitis is included. And even aside from this it is believed that the point of view, the methods of presentation, the deletion of excess verbiage, adequately warrant this contribution to the textbook fold. F. N. A.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 9, number 3. (New York Number—June, 1929) 299 pages with 125 illustrations. Per Clinic year (February, 1929 to December, 1929). Philadelphia and London: W. B. Saunders Company. Price, paper, \$12.00; cloth, \$16.00.

The New York number contains the clinics held at various hospitals in New York City with contributions from nineteen attending surgeons. The book contains 299 pages and is illustrated with numerous drawings, photographs and photomicrographs.

HISTORY OF MEDICINE. With Medical Chronology, Suggestions for Study and Bibliographic Data. By Fielding H. Garrison, A.B., M.D., Lieutenant-Colonel, Medical Corps, U. S. Army, Surgeon General's Office, Washington, D. C. Fourth edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company. 1929. Price \$12.00.

An inquiry for the "best" history of medicine has, for the past fifteen years, invariably been referred to the magic name of Garrison. "The best" means the most complete and the most exhaustive and authoritative, and scholarly and explicit, and Garrison takes all of these superlatives in his field. To the student, the practitioner, the research worker, the editor, the librarian and the casual reader, Garrison's has become widely known as the most important manual on medical history that is in use today. Furthermore his work is the only American-made product that outshines the publications of Sudhoff's great German school of medical history, so the appearance of a new edition of his text (the third was issued in 1921) deserves a hail of very hearty enthusiasm.

This new edition very nearly comes up to all expectations. The physical size of the book remains the same, but it has acquired considerable new material and a large number of new and commendable illustrations.

A little information has been added to the earlier chapters, mostly interpolated into the third edition's text. But the author quite evidently hurried through this portion of his stint, for some of the minor errors, typographical and otherwise, survive. Thus, on page 160, we still read that Mundinus' "Anothomia" was first published at Padua in 1847. The book in question plainly states in its own colophon that it was issued on December 19, 1487, and John Freind, a seventeenth-century medical historian, is still credited with imprisonment on a charge of high treason in March, 1922-1923!

There is no biographic data on Dr. Banting, and almost no reference to his discovery of insulin. The index does indeed refer to insulin on page 654, but it isn't there; however, the middle of the next page honors Abel's production of crystallized insulin in large type.

In the coming years medical historians will ask for a more clear-cut picture of the differentiation and development of the medical specialties of our own day. They will wish to pry into the cultural and economic factors of the divisions of practice that have come about, the influences that began these divisions, and their causes and results. They will want a more detailed account of the origins and progress of our medical society organizations, and much more information on the foundations and rise of our diagnostic clinics and centers, and of "group medicine." Though these are too much of the

present to deserve a place in our histories, the future will surely deem them of great importance, and Garrison's few lines on these topics will not suffice.

But notwithstanding its faults the work is still "the best," and is exceptionally valuable. Dr. Garrison's pen is facile, his language is easily read and pleasant, and he enlivens veritable reams of dull and dusty historical and statistical matter into pictures of vivid colors.

C. D. H.

LIPIDOL IN THE DIAGNOSIS OF THORACIC DISEASE. By F. G. Chandler, M.A., M.D. (Contab.), F.R.C.P., (Lond.) Physician with Charge of Out-Patients, Charing Cross Hospital, etc., and W. Burton Wood, M.A., M.D. (Cantab.), M.R.C.P. (Lond.) Physician with Charge of Outpatients, City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E. Humphrey Milford. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1928. Price \$3.50.

This is a book of unusual interest and shows the possibility of a far better diagnosis of chest conditions. We compliment the author and publisher on the clearness of detail in the X-ray demonstrations. The book can be recommended to all who are interested in chest work.

E. S.

GENERAL SURGERY. The Practical Medicine Series comprising eight volumes on the year's progress in medicine and surgery. Edited by Evarts A. Graham, A.B., M.D., Professor of Surgery, Washington University School of Medicine; Surgeon-in-Chief of the Barnes Hospital and of the Children's Hospital, St. Louis. Series 1928. The Year Book Publishers, 304 South Dearborn Street, Chicago.

The 1928 volume on General Surgery of the Practical Medicine Series, is the usual excellent summary of surgery for the year. I have the impression that these surgical volumes improve each year. The contents are excellent abstracts and give the essentials of a year's surgical publications. Every surgeon would be benefited by a careful perusal of this annual review.

T. G. O.

WOMAN, HER SEX AND LOVE LIFE. By William J. Robinson, M.D., Chief of the Department of Genito-Urinary Diseases and Dermatology, Bronx Hospital Dispensary, etc. Illustrated. Seventeenth edition. New York: Eugenics Publishing Company. 1929. Price \$3.00.

This volume is a very lucid but withal simple explanation of the sex life of woman. It is written primarily for the lay public but may be read with interest by physicians. However the exposition is very primary and there is little attempt on the part of the author to delve deeply into the underlying basic psychologic sexual principles.

The layman will find much information about the anatomy and the physiology of the female sexual organs. There are chapters dealing with the relation of the venereal problem to marriage, psychiatric conditions and their influence upon pregnancy and married life.

The author has rather a wholesome outlook on the field and seems to preserve a balance of judgment which is most important in dealing with a subject so closely related to the lives and happiness of human beings and which plays such an important part in maintaining the integrity of society. A. McM.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME XXVI

SEPTEMBER, 1929

NUMBER 9

E. J. GOODWIN, M.D., Editor
1023 Missouri Building, St. Louis, Mo.

PUBLICATION { J. C. B. DAVIS, M.D., Chairman
COMMITTEE { G. WILSE ROBINSON, M.D.
M. A. BLISS, M.D.

ORIGINAL ARTICLES

CONFIDENTIAL RELATION OF PHYSICIAN TO PATIENT*

ADDRESS OF THE PRESIDENT-ELECT

T. W. COTTON, M.D.

VAN BUREN, MO.

As this is the beginning of my administration I have not much to talk about, but the general trend of my short address will be the confidential relations of medicine. Through the efforts of the medical profession the span of life has been lengthened in the last half century from around forty to fifty-eight years, and while many brilliant results have been accomplished there still remains much for research. In this class is cancer, which has baffled investigators for ages, and its cause and treatment still await solution. Also heart disease, which is still taking a heavy toll, is the subject of research to determine more about its cause. Undulant, or Malta, fever in some areas is even more important from a public health viewpoint than typhoid, which latter is all but conquered by preventive measures, as is diphtheria, that scourge of former days. Some of us can look back to the time before the advent of antitoxin and recall how helpless we were when we were compelled to look on and see our little patient oftentimes perish before our eyes! I think if I had to go back to the old times and old methods in vogue when I entered practice I should want to quit the job at once. We do not cure diphtheria now, we prevent it. We prevent typhoid, and we have been preventing smallpox for years. The physician of tomorrow is going to be largely a prophylactic physician rather than a therapeutic one, and the span of human life will be further stretched

when means of prevention have been elaborated for other diseases, as we have now for smallpox, diphtheria and typhoid fever. Then the medical millennium will be at hand and doctors can turn rather to the surgical side of things. In a country of one hundred and twenty millions of people, so opulent that its coffers contain half the gold in the whole world, with more than twenty-four millions of automobiles, enough to carry every man, woman and child simultaneously, there will necessarily be accidents and the surgeon's services will be required.

In his address to the American Medical Association President Coolidge said: "The world looks largely to the medical profession to bring about a physical, moral and spiritual regeneration, when not force but reason will hold universal sway."

It was once my good fortune to be thrown into daily association with some British medical missionaries to India who were home for a few months for rest and medical review. They told me that when the Indians, who are great sufferers from eye diseases, could be relieved through the efforts of the missionaries they were not only grateful but as a rule would listen to the gospel story with a confidence and a credence not otherwise easily attained. The same is true, though perhaps in a lesser measure, of the family physician and the patient with whom he comes into frequent professional relationship, a relationship that is necessarily confidential, and almost unconsciously will he be consulted on matters of a wider range than are compassed by the field of medicine and surgery, and thus a relationship develops that makes the physician the custodian of a friendship, or I was about to say a comradeship, seldom or never shared by the patient with his merchant, his grocer, or even with his attorney.

Your family doctor is entrusted with confidences that border on the sacred things of

*Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

life and which are respected even in the courts of the land, the medical witness not usually being required to divulge the professional secrets of his patient. There is perhaps no better illustration in literature of the idea that I am trying to convey than the Bible story recorded in the book of Luke, in which the friendship between Luke, the physician, and Mary, the mother of Jesus, is beautifully portrayed. Luke was placed in a position to give the world a glimpse of the boy life of the Master. This intimacy, coupled with his professional character as a medical man, enabled him to draw from Mary the particulars of the miraculous conception and the singular circumstances surrounding and connected with the Savior's birth. Luke's narrative tells a mother's story. A womanly woman would not, could not, tell that story to any other than her confidential medical adviser, nor could any other person fully appreciate the details of such an event. Think for a moment of the utter impossibility of a mother telling of these occurrences to a rude fisherman or a tax collector! Her very nature would revolt and compel her to shrink from the ordeal. But Luke knew the distress and maternal agony to which she was subjected. He was her family physician. When we analyze this splendid relationship between physician and patient we may be able to ascertain some avenues through which it might be possible for the medical profession to better the moral and spiritual condition of the people, along with his efforts at physical relief, as suggested by President Coolidge.

I take it that this confidential relationship is privileged on the part of the physician because a man's home is his castle to which he can retire and commune with those dear to him, with all the rest of the world shut out, with the single exception of his family physician, who must be admitted to this sanctum sanctorum when the storm clouds of disease cast their shadow on the threshold, when the dark angel hovers near the bedside, and when anxiety, grief and sorrow stalk unbidden into the home. It is then that there is no seclusion so restricted, no confidence so absolute, that it may not be unfolded to your confidential medical adviser. He is welcomed, and what a wonderful welcome it is! Only he who is engaged in this sort of service and who labors with his heart as well as with his head and his hands, can fully know. He is the physician.

SURGICAL APPLICATIONS OF THERAPEUTIC VENOUS OBSTRUCTION*†

BARNEY BROOKS, M.D.

NASHVILLE, TENN.

It is remarkable that a process so apparent as the circulation of the blood could have remained undiscovered through so many centuries during which there was an accumulation of knowledge of other more complex phenomena. If one only contemplates the vast number of opportunities which were presented for the discovery of the circulation of the blood and recalls the simplicity of the experiments of William Harvey, one is amazed that this discovery should have been deferred so long. It would seem as if a sort of mysticism always assigned to the cardiovascular mechanism had prevented an appreciation of its simple realities. Discussions of the problems of the circulation of the extremities still contain many vague ideas and few definite terms. It would seem worth while, therefore, to discuss some therapeutic measure applicable to disease of the circulation of the extremities with the object in view of tracing its historical development and collecting the existent definite knowledge concerning its fundamental principles.

Therapeutic venous obstruction is as old as medical literature. It is quite natural that intentional obliteration of veins should have been first used in the treatment of conditions in which there were external manifestations of disease in the veins. Hippocrates¹ described a method of obliteration of a varix in which needles were passed into the dilated veins. Paul of Aegina,² Celsus and Galen described methods of excision of varicose veins, and this operation is said to have been mentioned by Pliny and Plutarchus. The fact that the celebrated Caius Marius submitted to an operation for varicose veins without being bound is mentioned as an evidence of his fortitude. In more recent times, Max Schede³ and Trendelenburg⁴ revived the operative treatment for varicose veins. During the past few years, there has been a marked revival of

Note. This article also appeared in *Archives of Surgery* for July, 1929. Simultaneous publication was intended but found not feasible.

* From the Department of Surgery, Vanderbilt University Medical School.

† The Hodgen Lecture of the St. Louis Surgical Society, delivered in St. Louis, Jan. 15, 1929.

1. Works of Hippocrates, translated by Francis Adams, New York, William Wood & Company, vol. 2, p. 305.

2. Paulus Aegineta: New Sydenham Series, 1846, vol. 2, p. 406.

3. Schede, Max: Berl. klin. Wchnschr. 14:85, 1877.

4. Trendelenburg: Beitr. z. klin. Chir. 7:195, 1891.

interest in therapeutic venous occlusion by injection. It is interesting to note that this method was extensively used and discarded previous to the development of antiseptic surgery.

The origination of the idea of purposeful occlusion of normal veins as a therapeutic measure in the treatment for arterial disease is usually ascribed to Sir George Makins⁵ who observed, from experiences in the South African War, that there was a smaller incidence of gangrene in those instances of arteriovenous fistula resulting from gunshot wounds which were treated by ligation of both the artery and the vein than in similar wounds treated by ligation of the artery alone. It is interesting to note, however, that this observation of Makins was not recorded until his delivery of the Bradshaw Lecture in 1913, and that at this time he referred only to a study of a series of records of arteriovenous fistula.

In a subsequent address, the Hunterian Oration delivered in February, 1917, Makins⁶ went further in his conclusions as to the application of venous occlusion as a therapeutic measure. In this address he advocated the possible value of ligation of the vein as a therapeutic measure in instances in which there is arterial occlusion but no fistulous opening between the artery and the vein. It is interesting, however, to note that in this address Makins referred to the observations of von Oppel concerning the beneficial effects of simple ligation of the vein in instances of spontaneous arterial occlusion without arteriovenous fistula.

During the World War, this subject was made the principal point of discussion at a meeting of the French Surgical Society in July, 1917, at which time Professor Tuffier⁷ expressed his views on the subject in the following words⁸:

We all know that the three arterial ligations which most often expose patients to grave dangers of disturbance are (1) those of the femoral trunk, (2) those of the carotid at its bifurcation, and (3) those of the popliteal artery in the lower half of the popliteal space. If I believe everything that I have seen of ligation since the beginning of this war, it is that the occlusion of the popliteal in its lower half causes most disasters; gangrene of the limb is very often a consequence of it.

To lessen the chances of ischemia or of the gangrene following ligatures in these regions, it has been advised to have recourse more often to lateral sutures in all cases where the nature of the lesions permitted it, and I fully share this opinion.

5. Makins: *Gunshot Wounds of the Blood Vessels*, New York, William Wood & Company, 1919, p. 101.

6. Makins: *Lancet* 1:249, 1917.

7. Tuffier: *Bull. et mem. Soc. de chir. de Paris* 43:1469, 1917.

8. Halsted's translation.

There is a great advantage in having recourse to arterial sutures; they are less difficult to place than one believes.

There is a practice to which I desire again to direct your attention in this connection; it is ligation of the corresponding healthy vein in all cases of ligation of the great vessels of the root of the limbs. This question, raised long ago, can find in actual occurrences some particularly suggestive statistics. There is first a fact which appears well demonstrated; it is that ligation of the vein and of the artery in the case of wounds of the two vessels does not increase the danger of ischemia. Moreover, the statistics of the English Army, which Sir George Makins has communicated to us, give in this connection the following ratios: Ligation of the artery alone is followed in a general way by gangrene in 40.2 per cent, whereas simultaneous ligation of the artery and of the vein under the same conditions gives 24.5 per cent; and I speak only of gangrene from ischemia.

The most marked difference is in connection with the popliteal; ligation of the artery alone in twenty-four cases gave favorable results in 58.33 per cent, and gangrene in 41.66 per cent. Simultaneous ligation of the artery and of the vein has given in twenty-eight cases twenty-two favorable results and only six cases of gangrene.

It is interesting to note that Tuffier referred to simultaneous ligation of the vein as "a subject raised long ago." The danger of ligation of veins in the presence of supuration was emphasized by Pirogoff. After the development of antiseptic surgery, both experimental and clinical, observations were reported which justified the conclusion that ligation of the vein with the artery does not entail a risk of gangrene greater than ligation of the artery alone. I have found no record previous to the beginning of the twentieth century which contained a definite statement indicating that ligation of a vein is a therapeutic measure in the treatment of arterial disease. In a private communication, Makins stated: "At the time of the Boer War (1899-1902), I held the generally accepted view of the necessity of sparing the vein."

In a report of a study of the surgical treatment for aneurysm of the subclavian artery, Halsted⁹ discussed the subject of therapeutic occlusion of healthy veins at some length. In this publication, he called attention to the fact that occlusion of the vein, as a method of prevention of gangrene, had been recommended previous to the time of the publications of Makins. He expressed the belief that the first record of the idea is contained in a report of an operation by von Oppel,¹⁰ published in 1908. It is interesting to note that this publication of von Oppel dealt with an operation on a patient suffering from arteriovenous fistula.

9. Halsted: *Johns Hopkins Hosp. Rep.* 21:1, 1921.

10. Von Oppel: *Arch. f. klin. Chir.* 86:31, 1908.

It would seem, therefore, that the fundamental principles involved in therapeutic venous obstruction had been considered the same whether this operation was applied to arteriovenous fistula or to arterial obstruction without arteriovenous communication.

I believe that this opinion is erroneous and that careful study of the conditions present in varicose veins, arteriovenous fistula, and in arterial obstruction without fistula will show that the fundamental principles involved in the application of therapeutic venous obstruction to these different conditions are not the same.

In order to make myself clear in the attempt to analyze the different conditions in the circulation of the extremities for which therapeutic venous occlusion is indicated, it will be necessary to review briefly some of the most elemental factors concerned in the circulation of blood.

In the beginning, it is worth while to point out that however complex the function of the circulation of the blood in health or the pathologic changes in blood flow in disease may be, the actual circulation of blood is only a fluid flowing through tubes. The physical and chemical characteristics of the fluid may vary and the mechanism of control of the cross-section area of the tubes may be exceedingly complex, but the fact remains that in the last analysis the circulation of the blood is a simple mechanical phenomenon.

If the circulation of the blood in health or disease is approached from this point of view, it is at once apparent that with the assumption of a constancy of the physical and chemical properties of the blood, there are two important variable factors: (1) the amount of blood which passes through a unit volume of tissue in a given time, the volume flow, and (2) the tension of the blood in the vessels through which it is passing, the intravascular pressure. It might be said that if the peripheral circulation is to be discussed from the point of view of its being a mere mechanical phenomenon of a fluid flowing through tubes, volume flow was the single important factor since it is obvious that the amount of fluid which flows through a unit length of a tube is dependent on the cross-section diameter of this tube and the difference in pressures between the inflowing and outflowing points, but certain evidence exists which makes it seem likely that nutrition of the tissues is dependent on the conditions of intravascular pressure independent of

volume flow. It is also worth while to emphasize another point, the lack of appreciation of which has often led to error. The volume flow of blood must, of necessity, in all instances be the summation of all the blood flowing through every channel of that particular portion of the body under consideration. For example, the cardiac output or the total amount of blood which is put out by the heart in a unit of time must be the same as that which is flowing through every capillary in the body. It is possible to have great variations in the volume flow of blood through any particular organ without necessarily changing the cardiac output or total volume flow. For example, during the process of digestion, there may be a much larger amount of blood flowing through the intraabdominal organs and a correspondingly less amount of blood flowing through the peripheral structures. This principle is perhaps best referred to as the distribution of blood flow. The amount of blood flowing through an extremity may be actually greater than normal, in spite of the fact that a portion of this extremity may be receiving a blood flow below that necessary for normal nutrition. I wish particularly to emphasize this point because of conclusions that are now being drawn from certain experimental work in which it is assumed that evidence of an increased volume flow of blood to a lower extremity is taken to mean that all of the tissues of this extremity are receiving an increased circulation.

The distribution of the blood through tissues must be considered as applying to small volumes as well as to relatively large volumes of tissue. It has been clearly demonstrated that blood may be flowing freely through a capillary at a time when no blood is flowing through another capillary a small fraction of a millimeter distant.

FUNDAMENTAL PRINCIPLES OF THERAPEUTIC VENOUS OCCLUSION

After this definition of terms, I shall proceed with a discussion of the fundamental principles involved in the application of therapeutic venous occlusion to those conditions for which it has been used.

Venous obstruction as a therapeutic measure has been applied in three conditions: varicose veins with the attendant ulceration, arteriovenous fistula and simple arterial obstruction which may be either acute complete or progressive partial.

1. In instances of varicose veins associated

with poor nutrition of tissues, the condition is probably one in which the poor nutrition of the tissues is the result of an already existent venous obstruction that operates to produce a diminished volume flow of blood through some of the superficial tissues. The only reason for the occlusion of the dilated veins which has ever been assigned, paradoxical as it may seem, is the ultimate removal of this existent venous obstruction. Further discussion of this particular phase of surgery of the venous system is not appropriate at this time.

2. In instances of arteriovenous fistula, the condition is one of an abnormal communication between the artery and vein through which the blood, destined for the tissues supplied by the artery distal to the fistulous opening, is shunted directly into the vein. In this condition, there are two circulations: a normal

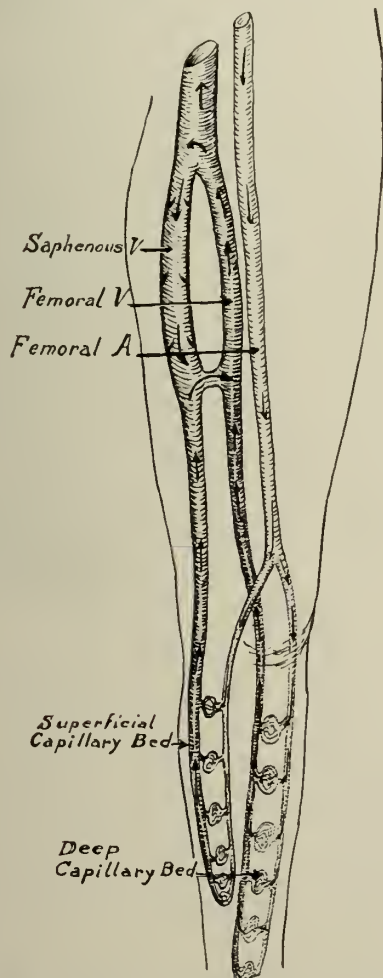


Fig. 1.—Conditions of the circulation of the extremity in the presence of varicose veins of the leg. The hydrostatic pressure in the absence of valves in the saphenous vein results in an increase in the venous pressure in the superficial veins. There is, therefore, a disproportion between the resistance offered in the capillaries of the deeper circulation. In this figure and figures 2, 3, 5, 6, 7, 8 and 9, V indicates vein and A, artery.

circulation through the capillary bed of the extremity and an abnormal circulation through the fistulous track. The arteries, capillaries and veins of the extremity are presumably normal. The anatomic defect lies solely in the fistulous communication between the artery and the vein. The physiologic defect lies solely in the diminution of the volume flow through the capillary bed because part of the arterial blood passes directly into the veins through the fistulous opening. From this, it is obvious that any therapeutic measure must have as its prime object the diversion of the volume flow

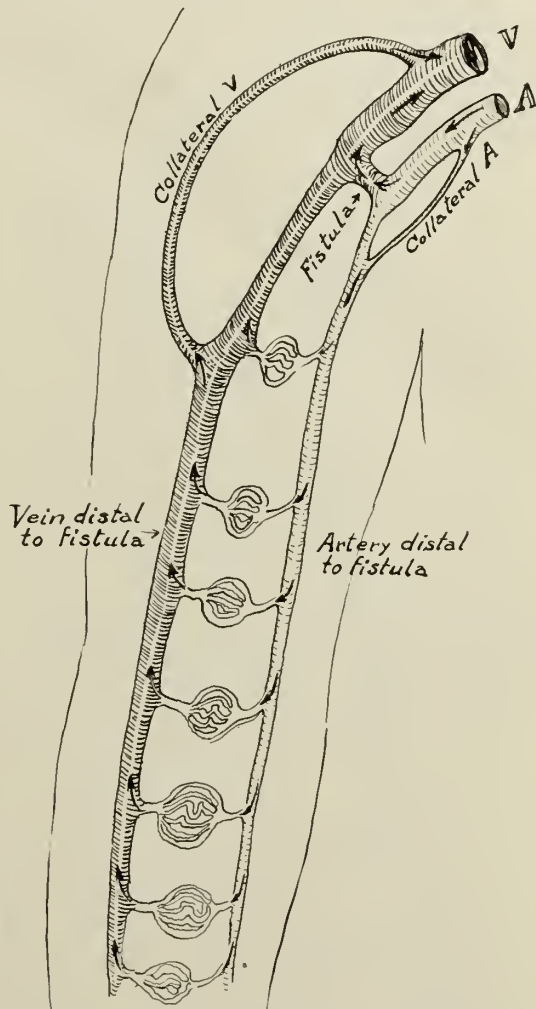


Fig. 2.—Conditions in the circulation of the arm with a fistulous opening between the axillary vein and artery. Blood may pass from the artery to the vein either through the capillaries of the arm or through the arteriovenous fistula. If the artery is obstructed just proximal to the fistulous opening, blood passing through the collateral arterial branch may also pass through the capillaries or the fistulous opening. Obstruction of the artery, therefore, merely results in a diminution in the volume flow through both circulations. The reduction of the volume flow through the capillary bed is probably in all instances proportionately greater than the reduction of the volume flow through the fistulous opening. Simultaneous ligation of the vein at the same level may diminish the volume flow of blood through the fistulous opening and increase the volume flow through the capillary bed. See also figures 4 and 9.

of blood of the abnormal circulation into the paths of the normal circulation.

3. In instances of simple arterial occlusion without arteriovenous fistula and without any demonstrable disease of the veins, the condition is one of a reduction of inflow of blood into the arterial tree distal to the point of obstruction without a corresponding reduction in the capacity of the outflow channels. There is no communication between the artery and vein other than through the capillary bed, and blood may flow from the artery to the vein through this capillary bed in all portions of the extremity. With an appreciation of the elementary principles of the flow of fluids through tubes, it becomes obvious that such a condition is of necessity associated with a diminution of volume flow through the tissues supplied by the obstructed artery and a dimin-

ished intravascular tension in the arteries, capillaries and veins. An artery may be completely obstructed suddenly by wound, ligature or embolus, or arterial obstruction may be the result of a progressive obliterating arterial disease.

It is primarily my purpose in this paper to inquire into the history of the development of the idea of therapeutic venous obstruction for arterial disease, to discuss the fundamental principles involved and to comment on the clinical applications. As has already been stated, the origin of the idea of purposeful obstruction of a healthy vein for its possible beneficial effects in instances of dangerous anemia from arterial occlusion has been attributed to experiences with arteriovenous fistula. The first advancement of this idea is usually attributed to Sir George Makins. I am convinced, however, that the idea had previously occurred to others. From a study of the literature, it seems that Makins did not clearly enunciate this idea until the delivery of his Hunterian Oration before the Royal College of Surgeons of England on Feb. 14, 1917,⁶ and it is interesting that even at this time Makins included the evidence derived from the operative treatment of arteriovenous fistula as substantiating the conclusion that ligature of a healthy vein is to be recommended in instances of simple arterial obstruction. It is to the credit of Makins, however, that he apparently realized that ligature of the vein in arteriovenous fistula involved somewhat different principles, because he stated in his Hunterian Oration, "Evidence, moreover, exists that under certain conditions ligature of both artery and vein is a preferable procedure. The first example, *not an unmixed or simple one*,¹¹ may be sought in the results observed to follow the application of a single proximal ligature to the artery in cases of arteriovenous aneurysm.

"A more striking example is offered by the ligaturing of the popliteal vein alone for the treatment of senile gangrene of the foot by W. A. Oppel."

It is interesting that Halsted, also, apparently confused the principles underlying occlusion of the vein in the treatment for arteriovenous fistula with the principles underlying the therapeutic occlusion of the vein in instances of arterial obstruction without arteriovenous fistula.

The experience of von Oppel, to which Halsted ascribed the origin of the idea of ligation of the concomitant healthy vein in the presence of arterial obstruction, was briefly as follows:

A man, aged 32, presented the clinical manifes-

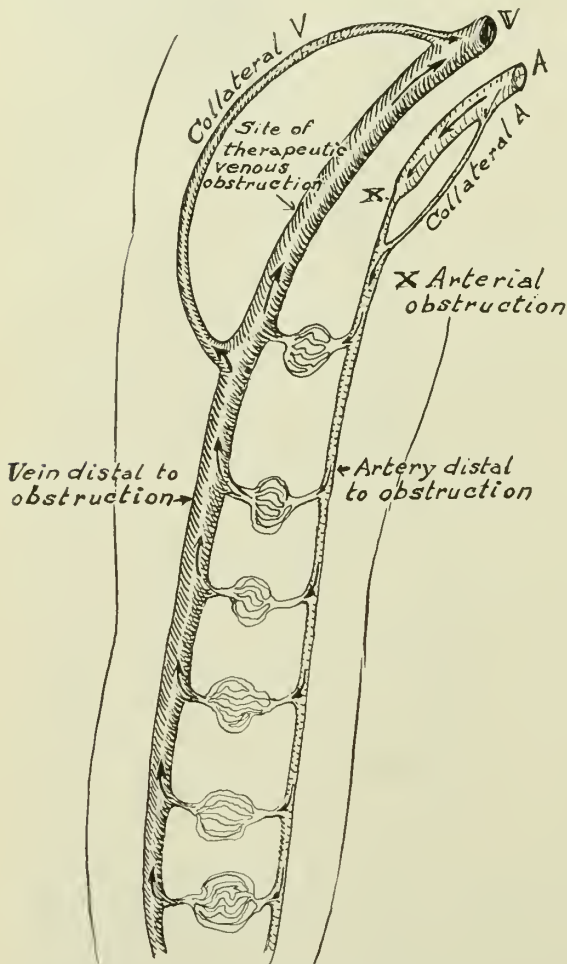


Fig. 3.—Conditions present in the circulation of the arm with simple arterial obstruction without arteriovenous fistula. No communication exists between the artery and vein except through the capillaries of the extremity. Therapeutic occlusion of the axillary vein makes it necessary for the return flow of blood to pass through the collateral vein. A difference of opinion exists as to the effects of the obstruction of the vein on the volume flow of blood through the capillaries. See also figure 7.

11. Author's italics.

tations of a fistula between the axillary artery and vein due to a gunshot wound. Three operations were performed on May 5, 1905. During the course of the operations, frequent observations of the blood pressure were made by Korotkow.

The first operation was completed at 11:30 a. m., and consisted of a double ligation and division of the axillary proximal to the aneurysm sac. Following this procedure, the arm became deathly pale and the blood pressure, zero.

The second operation was begun at 3:30 p. m., and finished at 4:30 p. m. The wound was opened. The axillary vein was divided above the aneurysm between ligatures. No change in the arm was noted by Korotkow. The operator then observed that pressure with the finger in the space between the stumps of the divided artery caused the arm to become red and the blood pressure to rise to 40 mm. A search was then made in the vicinity in which the pressure was exerted, and a large vein (v. axillaris profunda) was found. This vein was doubly ligated and divided. The blood pressure in the arm rose to 40 mm. The wound was then closed. When the dressings were applied, it was noted that the arm was getting pale. After the patient was returned to bed, the arm continued to be pale and severe pain developed.

The third operation was begun at 8:30 p. m., and consisted in a complete extirpation of the arteriovenous fistula. Immediately after isolation of the aneurysm sac, the arm became hyperemic and remained so for a period of twenty-four hours. Pain ceased, and an uneventful convalescence ensued.

I believe that von Oppel was in error in attributing the temporary improvement in the circulation of the arm observed during the course of the second operation to occlusion of the deep axillary vein. It would seem more likely that the pressure of the finger or the operative maneuvers of exposure of the vein resulted in temporary compression of the fistulous tract. I believe that he was also in error in his statement that the patient's condition was improved by the second operation. The extreme pain which was present between the second and third operations would seem contradictory to this view.

This paper of von Oppel is an admirable record of the principles involved in the treatment for arteriovenous fistula. I am certain that any one who carefully reads this publication of von Oppel will be convinced that Korotkow, who was associated with von Oppel, had a clear conception of the principles involved in the ligation of the vein as a part of the operative procedure in the treatment for arteriovenous fistula. I believe that von Oppel had in mind only the conditions peculiar to arteriovenous fistula when he stated:

So far as I know, up to the present time, there has been no mention of a role being played by the veins in relation to the origin of gangrene of the extremities.

Von Oppel's conception of the relationship of venous obstruction to the conditions associated with arteriovenous fistula is more clearly expressed in the following statement:

When it is realized that the function of the collateral arterial circulation can be and is disturbed by the veins, which suck arterial blood through the aneurysmal sac, then it is easy to draw the conclusion that those operative procedures should be chosen which will remove the aspirating effect of the veins upon the arterial blood, in other words, that procedure will be correct which, in the region of the aneurysm, *separates the bed of the arterial blood from that of the venous blood.*²¹

In the separation of the bed of the arterial blood from that of the venous lies the principle of safe operative treatment of arteriovenous aneurysm of the peripheral vessels.

I believe that the first appreciation of the fundamental principles underlying therapeutic venous occlusion for arterial obstruction without arteriovenous fistula is to be found in the records of the experiences with an operative procedure opposite in nature to the operative method applicable to arteriovenous fistula.

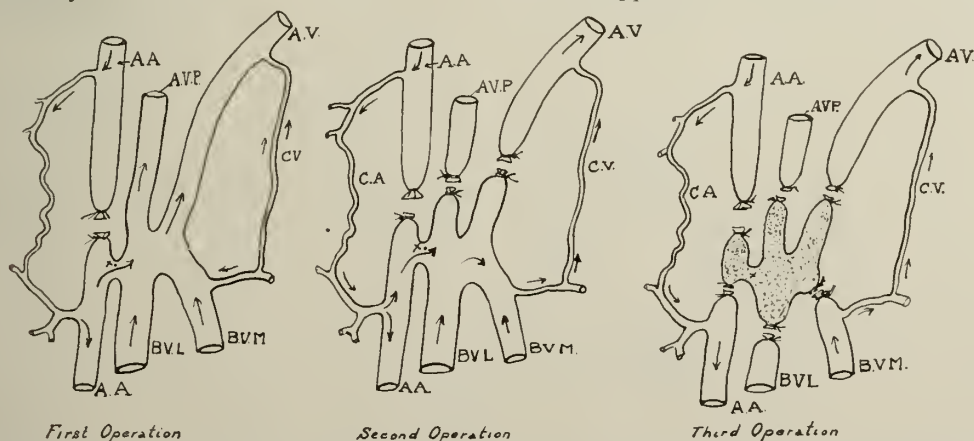


Fig. 4.—The operative procedure of von Oppel to which Halsted ascribed the origin of the idea of therapeutic ligation of the vein for prevention of gangrene. The diagrams are made from von Oppel's description. A.A., axillary artery; A.V., arteriovenous fistula; A.V., axillary vein; A.V.P., deep axillary vein; B.V.L., lateral brachial vein; B.V.M., medial brachial vein; C.V., collateral vein circulation; C.A., collateral arterial circulation. A description is given in the text.

In 1902, Carrel and Morrel attempted some experiments, the object of which was the reversal of the circulation in an extremity. During the same year, both Satrustegui¹² and Jaboulay attempted to produce a fistulous opening between the femoral artery and the femoral vein with the idea that this procedure would be beneficial in patients in whom gangrene of the extremity seemed imminent. In 1906, Carrel¹³ showed conclusively that reversal of the circulation was possible in the experimental animal. In the same year, Hubbard,¹⁴ of Boston, and Lilienthal,¹⁵ of New York, reported instances of the application of this operative procedure for the treatment of impending gangrene of an extremity. In 1908, Wieting,¹⁶ of Constantinople, described the indications, the operative technic and the results of an operation intended to reverse the circulation in the arteries and veins of an extremity in instances of arterial occlusion. In spite of the priority of the publications of Carrel, Hubbard and Lilienthal, this operation is still referred to in the literature as the Wieting operation. Following Wieting's report, there was much discussion as to the value of this operation as a therapeutic measure and as to the possibility of its actually resulting in a reversal of the direction of blood flow through the capillaries. The controversy between Wieting and Coenen¹⁷ was particularly spirited. Wieting enthusiastically contended for the success of the operative procedure and discredited all experimental work which led to conclusions contrary to his own. The result of the controversy was the stimulation of a wider interest in the problems concerned.

The technic of the operative procedure which stimulated so much interest in the surgical treatment for diseases of the circulation of the extremities was variously modified. The original procedure consisted in a complete division of both the artery and the vein, transposition of the stumps of the vessels and end-to-end sutures. The operative technic was changed to one in which the vein was ligated, the artery divided, and the distal stump of the artery ligated, and an anastomosis made between the proximal arterial stump and the vein distal to the ligation. The same result was accomplished by another modification of the operative technic, in which a lateral anastomosis of the artery and vein was made and the vein ligated proximal to and the artery distal to the fistulous opening. The final modification of the

operation consisted of a lateral anastomosis of artery and vein and ligation of the vein proximal to artificial arteriovenous fistula.

The result of the interest in these operative procedures was the stimulation of a considerable amount of experimental work, of which some of the most interesting and valuable contributions have been overlooked because of their publication in the Russian language. It would seem, however, that von Oppel and his assistants were the first to call attention to the possibility that all the beneficial results which had followed the various operative procedures for reversal of the circulation had been due to venous obstruction rather than actual reversal of the circulation. Von Oppel, therefore, advanced the idea that the logical procedure in instances of arterial obstruction was the ligation of the vein. As evidence of the truth of this, he¹⁸ reported in 1913 six instances of marked anemia of the lower extremity in which definite evidences of improvement had followed ligation of the popliteal vein. It is to this report that Makins referred in his Hunterian Oration in which he first advocated the ligation of the vein in instances of arterial obstruction without arteriovenous fistula.

It would seem, therefore, as if the idea of therapeutic venous occlusion for simple arterial obstruction grew out of the experiences with an operative procedure which in reality is a procedure quite opposite to that usually considered the origin of the idea.

In passing, it may be said that no better evi-

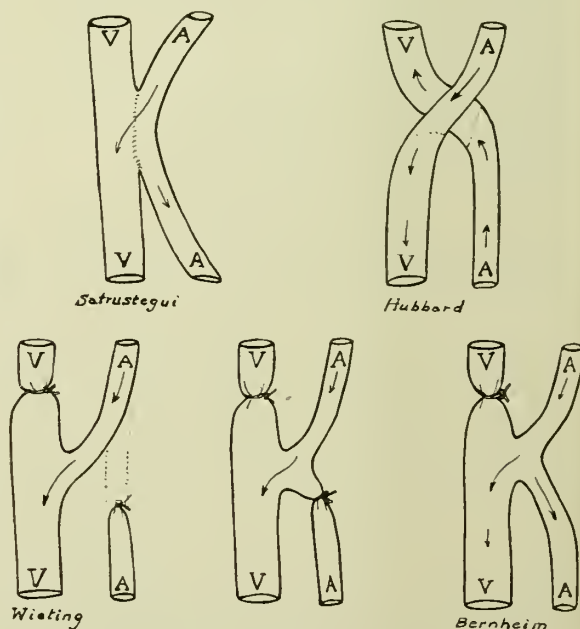


Fig. 5.—The various modifications of the operative procedure designed to reverse the circulation of an extremity

12. Satrustegui: Bull. med., Madrid, 1902.
13. Carrel and Guthrie: Ann. Surg. **43**:203, 1906.
14. Hubbard: Ann. Surg. **44**:559, 1906.
15. Lilienthal: Ann. Surg. **45**:1, 1907.
16. Wieting: Deutsche med. Wchnschr. **34**:1215, 1908.
17. Coenen: Zentralbl. f. Chir. **38**:106, 1911.

18. Von Oppel: Vrach. Gaz. **20**:303, 1913.

dence of the lack of knowledge of the elementary principles of the circulation of blood could be cited than the fact that a condition recognized as the cause of gangrene was produced as a means of its relief. It is also worth while to call attention to the fact that during this period of awakened interest in therapeutic venous occlusion, there was apparently no clear-cut definition of the different conditions to which it was deemed applicable. Von Oppel revealed his conception of the abnormal conditions of the circulation due to arterial obstruction when he wrote:¹⁹

As is known, angiosclerotic gangrene begins because of the lack of arterial blood supply. In instances of diminished circulation of an extremity, if the extremity is elevated, it becomes deathly pale and the characteristic ischemic pain ensues. If the extremity is then put into dependent position, hyperemia appears and the pain disappears. Why is this so? Observation of the blood pressure in the thigh in a patient with impending gangrene shows the blood pressure to be 30-50 mm. of mercury, which is about that of collateral arterial pressure after occlusion of the major arterial trunk. The blood pressure is, therefore, sufficiently low so that the hydrostatic pressure from the horizontal position is enough to cause cessation of the circulation. Maniewsky's experiments show that the Trendelenburg position may cause the pressure in the femoral vein to diminish nearly to zero. This is true if the arteries are healthy and the extremity is comparatively short. It is clear that with a diminished inflow of blood, this phenomenon would be exaggerated. Diminution in the venous pressure will result in a sucking into the vein of the collateral arterial blood supply and thus divert it from reaching the more distal aspects of the extremity. When the extremity is placed in the dependent position the weight of the blood in the arterial tree will be sufficient to cause a dilatation of the arteries, and the venous pressure will be increased. The advantage of the dependent position in preserving the nutrition of the tissues in patients with incipient gangrene is shown by the fact that these patients always prefer the extremity to be in the dependent position. In some instances, the patient cannot even endure the horizontal position. Both clinical and experimental observations show that ligation of the vein is associated with an increase in the pressure in the veins and arteries.

On these observations, I have recommended the ligation of the vein as a palliative procedure in instances of ischemic conditions, realizing that this procedure produces a reduction²⁰ in the circulation but is beneficial to the patient, at least for a time, in preventing the pain and helping to limit the gangrene. Ligation of the vein is beneficial not because the outflow is reduced, but because reduction in the outflow favorably influences the arterial circulation.

EXPERIMENTAL WORK

It would be impossible to review all the experimental work which has a bearing on ther-

apeutic venous obstruction. Many important observations bearing on this subject are contained in the records of researches, the purpose of which was the study of other problems in the circulation. A brief review of a few of the most recent publications, devoted exclusively to the simultaneous ligation of the vein as a therapeutic measure in arterial obstruction, is sufficient for the object of this paper.

At the Conference of Inter-Allied Surgeons in Paris in 1917, van Kend²¹ reported some experimental work, the conclusions of which were reported by Makins as follows:

In carrying out a series of experiments made with the object of determining the indications and physiological basis for transfusion of blood, I have had the opportunity of measuring the blood pressure in limbs of which the main artery had been ligatured. The blood pressure was taken successively after the artery alone had been tied and again when ligation of the vein had been super-

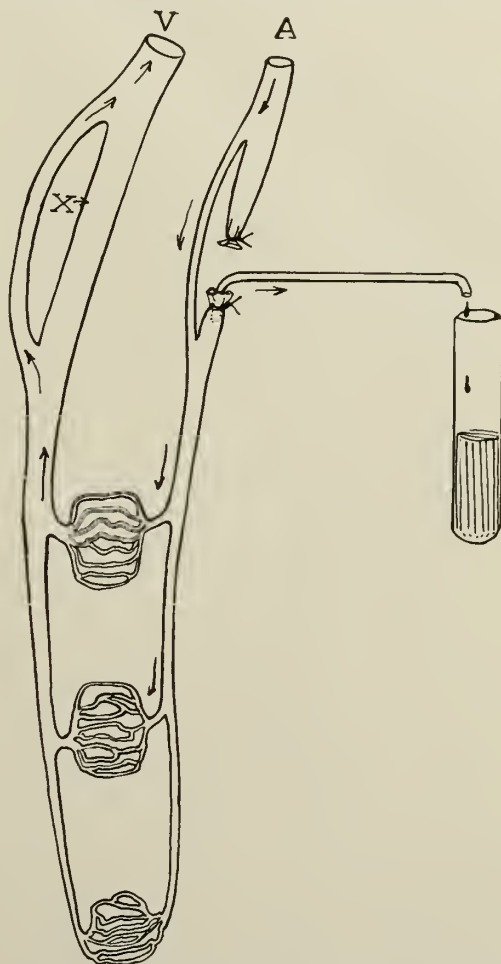


Fig. 6.—The experimental method used by Holman to determine the effects of ligation of the vein on the volume flow of blood through an extremity. It is obvious that obstruction of the vein at X would result in more blood flowing through the cannula. The fact that more blood flows from the cannula is not an indication of an increased volume flow of blood through the capillaries, but is evidence for the truth of the contrary conclusion.

19. Translated from the Russian by Mr. Myer Epstein. Vanderbilt University Medical School and abstracted by the author.

20. In "reduction of the circulation," I believe that von Oppel had in mind the entire extremity and not its most peripheral aspects.

21. Van Kend: *Compt. rend. conf. chir. internat., Paris*, 1917, p. 348.

added. My observations confirm the view that has been expressed by Sir George Makins. In fact, plethysmographic tracings demonstrate clearly that a slight rise in the blood pressure in the limb follows the application of a ligature to a main vein after previous ligation of the artery. It appears then from the standpoint of the physiologist that to leave the main vein viable after occlusion of the main artery of a limb diminishes what may be called the residuary blood pressure maintained by the collateral circulation. If the contribution of the collateral circulation is allowed to remain with the main vein intact it is natural that the residuary blood pressure should fall. If this view be adopted, ligation of the vein as well as the artery should be recommended in order to retain the blood supplied in longer contact with the tissues. Thus the most satisfactory conditions for the maintenance of the nutrition of the organs are provided, because the obstacle to the return circulation provided by the ligature retains the blood for a longer period in the member.

Makins also quoted from a private communication received from Major Hamilton Drummond in which Drummond reported having found, from experiments made on loops of intestine of the cat, that gangrene more frequently followed ligation of the arteries alone than if both the arteries and the veins were obstructed.

The only experimental work which Halsted reported in his discussion of therapeutic venous occlusion for the relief of symptoms following arterial occlusion is the result of six experiments in which the blood pressure in the arteries distal to the arterial occlusion was measured before and after occlusion of the concomitant vein. It was found that venous obstruction was always followed by an increase in the intra-arterial tension and that release of the venous occlusion was followed by a diminution in the intra-arterial pressure.

Experimental work which was undertaken for the study of other physiologic changes than those of blood pressure was reported by Brooks and Martin²² in 1923. In these experiments, it was found that the blood pressure in the artery distal to the point of occlusion was increased by the occlusion of the vein at the level of arterial occlusion. The pressure in the vein distal to the point of occlusion was increased relatively more than the pressure in the artery. The effect of the venous obstruction on the volume flow of blood in the tissues was studied by means of determinations of temperature in the tissue. It was found that after occlusion of the artery the temperature of the tissues, supplied by this vessel, was diminished and that further diminution occurred if the concomitant vein was also obstructed. From these facts, it was concluded

that in instances of arterial obstruction occlusion of the concomitant vein resulted in an increase in intravascular blood pressure of all the vessels distal to the occlusions, and that the diminution of the volume flow of blood which resulted from the arterial occlusion was further diminished by the venous obstruction.

The effect of ligation of the concomitant vein on the incidence of gangrene in arterial obstruction was studied in a comparatively large series of experimental animals. It was found that the incidence of gangrene was decidedly less in those instances of obstruction of both artery and vein than in those instances in which the artery alone was obstructed.

From these experiments it was concluded that obstruction of the concomitant vein in the presence of arterial obstruction resulted in an increase in intravascular pressure but in a decrease in volume flow of blood through the tissues. The diminished incidence of gangrene, in spite of the diminished volume flow of blood, was attributed to the beneficial effects of the increased intravascular tension which probably operated in such a way as to produce a more equitable distribution of the blood flow.

More recent experimental work by Holman²³ and by Theis²⁴ has confirmed the effects of concomitant ligation of the vein on the blood pressure, but both Holman and Theis have reached a conclusion contradictory to that of Brooks and Martin concerning the effect of concomitant venous obstruction on the volume flow of blood. I believe that both of these investigators are in error in that they have not correctly interpreted their experimental observations. Both of these investigators have used the same method for estimating the effects of obstruction of the vein on the volume flow of blood. This method consists in observing the flow of blood from a cannula placed in the artery distal to the point of arterial obstruction. It was found that the amount of blood which flowed out through the cannula was increased if the vein was obstructed. This fact was interpreted by both of these investigators to indicate an increase in volume flow of blood through the tissues after occlusion of the vein. It would seem obvious that the increased flow of blood from the cannula in the artery distal to the obstruction would be the result of an obstruction to the outflow of blood and the corresponding increase in intravascular pressure and would thus

23. Holman, E., and Edwards, M. E.: *New Principle in Surgery of Large Vessels*, J. A. M. A. **88**:909 (March 19) 1927.

24. Theis, F. V.: *Ligature of Artery and Concomitant Vein in Operation on Large Blood Vessels*, Arch. Surg. **17**:244 (Aug.) 1928.

22. Brooks, B., and Martin, K. A.: *Simultaneous Ligation of Vein and Artery*, J. A. M. A. **80**:1678 (June 9) 1923.

be an evidence of diminished rather than increased volume flow through the tissues.

Other physiologic changes resulting from intentional occlusion of veins have been studied experimentally. Holman and Edwards, from experiments on dogs, found that the arterial blood pressure distal to the point of arterial obstruction was increased relatively more if the vein was occluded at a level nearer the heart than at the site of the arterial obstruction. These investigators believed that the occlusion of the vein at this relatively higher level caused an increase in the peripheral resistance of the circulatory bed supplied by the arteries furnishing the collateral branches, and thus caused a diversion of blood through the collateral paths of circulation into the arterial system distal to the point of arterial obstruction. This conclusion is based on the fact that ligation of the vein at a higher level causes more increase in the intra-arterial pressure distal to the arterial occlusion than ligation of the vein at the same level of arterial occlusion. This possibility was also considered by Brooks and Martin, but no experimental evidence could be found to substantiate it. As a matter of fact, their observations were such as to lead them to believe that this diversion of blood flow did not actually occur.

The effects of venous occlusion on the number and size of the paths of collateral arterial circulation about a site of arterial obstruction have been studied experimentally by Pearse²⁵ and by Theis.²⁴ Pearse found that ligation of the artery and vein was always followed by

a richer collateral vascular bed than that following obstruction of the artery alone. On the other hand, Theis found that the collateral circulatory bed was better developed in those instances in which the artery and vein were occluded only if the determination was made immediately after the experimental vascular occlusion. In observations on the experimental animals, after a period of three weeks, the vascular bed was richer in those instances in which the artery alone was occluded.

The different results obtained by these investigators must have been due to a difference in the experimental methods used. It is worth while, however, to call attention to the fact that the size of blood vessels as determined by injection is not a reliable index of the actual volume flow of blood through tissues, and also to the fact that the condition of the circulatory bed three weeks after a sudden arterial occlusion is not necessarily important in the study of the cause of gangrene.

The conclusions from all observations concerning the physiologic effects of obstruction of a vein in the presence of arterial obstruction may then be briefly summarized as follows:

1. All observers agree that ligation of the concomitant vein in the presence of simple arterial obstruction is followed by an increase in the blood pressure in both the veins and the arteries distal to the level of obstruction.

2. Both experimental and clinical experience indicate that the incidence of gangrene is diminished.

25. Pearse: *Ann. Surg.* 86:850, 1927.

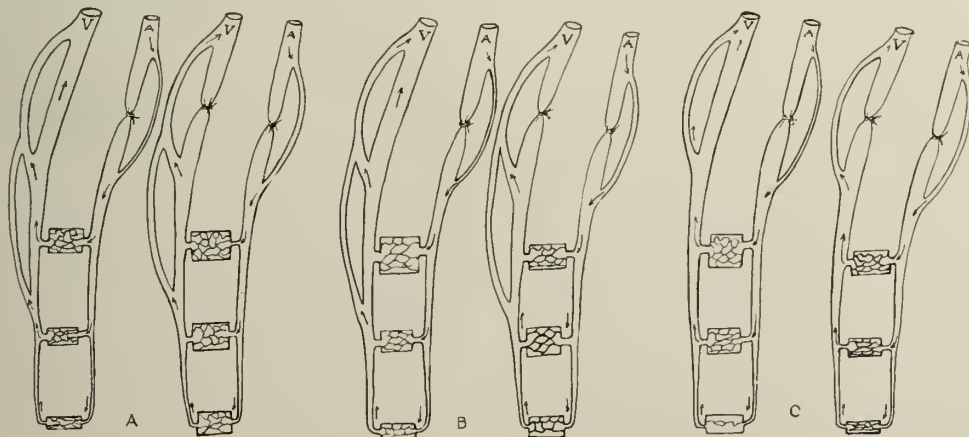


Fig. 7.—The different ideas which have been expressed as to the effect of simultaneous ligation of the vein on the volume flow of blood. In these diagrams the amount of the volume flow of blood in the capillary beds of the different aspects of the extremity is indicated by the vertical height of the rectangles. The distribution of the blood in the capillaries is indicated by the network in the rectangular spaces. The intracapillary pressure is indicated by the relative thickness of the lines of the network. In A, it will be seen that ligation of the vein is followed by an increase in the amount of volume flow and intracapillary pressure in all aspects of the extremity. In B, ligation of the vein is followed by a diminution in the volume flow through the proximal aspect of the extremity and an increase in the volume flow through the distal aspect of the extremity. The intracapillary pressure is increased in all aspects, and no change is indicated in the distribution of the flow in the capillaries. In C, it will be noted that the volume flow of blood is diminished in all aspects of the extremity after ligation of the vein. The intracapillary pressure is increased in all parts. The distribution of the flow in the capillaries of the most distal aspect of the extremity before ligation of the vein is irregular, while after ligation of the vein it is homogeneous.

3. In the attempts to explain the beneficial effects of therapeutic venous obstruction on the manifestations of arterial occlusion without arteriovenous fistula is found the confusion of ideas. Some are content to assign the beneficial effects to the "retention of blood in the tissues" or to a "restoration of the balance in circulation." With a clear conception of the fundamental principles of circulation of blood and the specific conditions under consideration, it becomes evident that the important differences of opinion, in regard to the effects of therapeutic venous obstruction, lie in the different views held concerning the influence of this procedure on the distribution of the volume flow of blood.

It would seem as if all observers, except Brooks and Martin, believed that ligation of the vein was beneficial because this procedure increased the volume flow of blood in the capillary bed of the distal aspect of the extremity. If such is true, then the fundamental principles involved may be the same in therapeutic venous obstruction whether it is applied as treatment for arteriovenous fistula or for simple arterial obstruction.

If the conclusions drawn from the experiments reported by Brooks and Martin and other unpublished experiments of mine are true, the beneficial results of therapeutic venous occlusion in instances of simple arterial occlusion are not because blood flow is increased in the distal aspects of the extremity, but because the blood flowing through the dis-

tal aspect of the extremity is more equably distributed in the capillaries and is under greater tension in all the vessels. The actual amount of the blood flowing through the distal tissues of the extremity is diminished by ligation of the vein. The principles involved in this view are entirely different from those concerned in therapeutic venous occlusion in the presence of arteriovenous fistula.

From a consideration of these facts, it would seem as if any existent difference of opinion was a matter of only academic interest, and that from the purely practical point of view the indications for therapeutic venous obstruction are clearly defined. Such is not the case. The conditions so far discussed have been considered from the point of view of their being fixed or unchanging. In the clinical application of the principles of therapeutic venous occlusion for arterial obstruction, it must be borne in mind that the situation is made more complex because the conditions are constantly changing and thus the remote as well as the immediate effects must be considered. In sudden arterial obstruction, from a wound or embolus, the greatest interference with the blood supply is immediate and without further complications, the blood flow through the anemic tissues may be expected to increase with the development of the collateral circulation. In instances of chronic arterial obstruction due to progressive obliterative arterial disease, there may be a constant or intermittent change in the opposite direction. Also the amount of venous obstruction which is produced by the ligation of a vein does not remain fixed. Paths of collateral circulation develop about points of venous obstruction. Important differences exist between development of collateral circulation in veins and in arteries.

The sole source of energy for the propulsion of the blood stream through the arteries is the contraction of the heart. The development of collateral circulation about a point of arterial obstruction is necessarily associated with a reversal of the direction of flow through the artery constituting the distal aspect of the collateral arch.

The capacity of the collateral arterial circulation is therefore determined solely by the cross-section area of the collateral anastomotic branches.

The energy for propulsion of the blood through the veins is derived from three sources:

1. Diastole of the right side of the heart aspirates blood from the adjacent large veins.
2. The blood may also be propelled through veins by the force of the left side of the heart transmitted through the arteries and capil-

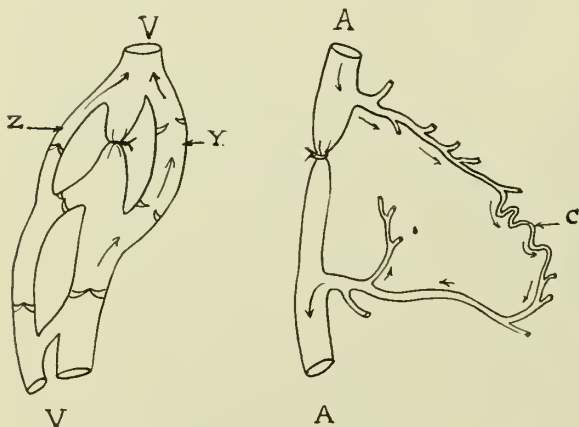


Fig. 8.—The differences in the conditions attending the development of collateral circulation in arteries (A) and in veins (V). It will be noted in A that the collateral circulation is from a branch proximal to the arterial obstruction through the collateral anastomotic branch (C) and thence in the reversed direction through the artery forming the distal aspect of the collateral arch. It is obvious that the amount of blood which passes through the collateral arch may continue to increase with an increase in the cross-section area of the arch. In V it will be noted that the collateral circulation about the obstruction is prevented from developing through the channel Z on account of the action of the valves. If it develops through the channel Y and this vessel subsequently enlarges, then its valves become competent.

laries. 3. In veins with valves, the flow of blood is accelerated by the alternate compression and relaxation of the vein by motion of the adjacent tissues. The operation of this factor is dependent on the fact that the valves in the vein permit the flow of blood in only one direction. The last factor is of great importance in propelling blood through veins of the extremity.

If collateral circulation in veins is considered in the light of these facts, it is obvious that a venous collateral circulation cannot develop by the reversal of the direction of the current through veins with competent valves. Furthermore, if the collateral circulation is through veins in the normal direction, then dilatation of these veins renders the valves inefficient.

These statements are in accord with clinical experience. If an extremity successfully passes through the immediate critical stage following simple arterial occlusion, a satisfactory permanent recovery may be anticipated. If, however, the manifestations of severe venous obstruction develop, convalescence is prolonged and often never complete.

It would seem, therefore, as if the remote effects of therapeutic venous obstruction must be taken into consideration. In other words, ligation of a vein might be the means of averting gangrene but the cause of subsequent chronic venous stasis. The clinical experience available is not sufficient for drawing definite conclusions. A letter from Sir George Makins, written in May, 1922, stated:

I have seen some swollen extremities and varicose veins amongst the war pensioners, but in all the cases I have had the opportunity of examining, the injury to the vessels was accompanied either by very extensive wounds with loss of substance, or fracture of the femur or pelvis. I have not been able to regard these cases as a fair test, and no uncomplicated case of ligation of artery and vein with unsatisfactory after-consequences has come under my notice.

Still, I think the question of the ultimate condition of the limb must be considered undecided.

My own clinical experience leads me to believe that venous occlusion of an amount sufficient to be of value in the prevention of gangrene is often followed by manifestations of venous stasis from which convalescence is prolonged or incomplete.

From a consideration of all evidence available, I believe that the following statements are substantiated by the results of experimental study and clinical experience.

A. In operations for the cure of arteriovenous fistula, the vein should always be ligated in any of the following conditions: (a) If in the course of an operation the artery has already been ligated and it is then found that

the complexity of the condition present makes it seem beyond the skill of the operator to attempt to close the fistulous opening, or if the surgeon is uncertain of the success of his attempts, then ligation of the vein proximal to the fistula is imperative (Fig. 9). (b) If an arteriovenous fistula has existed for a relatively short period and if it is necessary to obliterate the artery in order to close the fistula, then ligation of the vein is preferable in most instances and is always indicated if the artery is either the popliteal or the axillary. If an arteriovenous fistula is of long duration, the collateral arterial circulation is so abundant that even though it is necessary to obliterate the main artery in closing the fistula, ligation of the vein is unnecessary and even contraindicated. (c) There is a certain amount of justification in the view that ligature of the vein is always preferable in the treatment for arteriovenous fistula because of the danger of pulmonary embolism from thrombosis at the site of repair of the fistulous opening in the vein. I do not subscribe to this view.

B. In progressive arterial degenerative disease, associated with arterial obstruction, ligation of the vein is at most a palliative measure, the beneficial effects of which only occasionally justify its employment.

C. In instances of sudden arterial occlu-

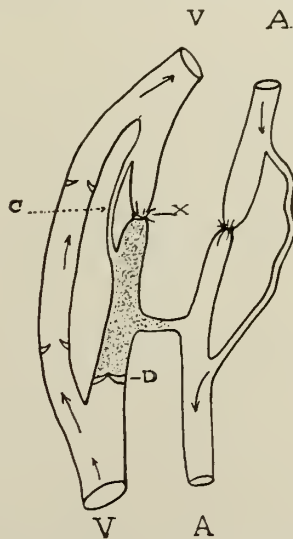


Fig. 9.—The effect of simultaneous ligation of the vein in the presence of arteriovenous fistula. In the conditions represented in the diagram, it will be seen that with ligation of the vein at X with the competence of the valve at D only such blood can pass through the fistula as could return to the heart through the vein (C). This would be true only if the pressure within the dotted area was insufficient to cause a breaking down of the valve at D. Subsequent increase in the pressure in the dotted area or dilatation of the vein at D would open new channels for the return flow of blood passing through the fistulous opening. This diagram illustrates a principle which may explain the temporary "improvement" sometimes observed in the treatment of arteriovenous fistula by simple proximal ligation of artery and vein. This condition may have been present immediately after the second operation in von Oppel's case.

sion, therapeutic venous obstruction finds its most valuable applications.

If from traumatism or in the course of any operation it becomes necessary to ligate a large artery, simultaneous ligation of the concomitant vein should always be considered. If the artery ligated is the popliteal or axillary, I believe that ligation of the like named vein is definitely indicated. In instances of ligature of the femoral or brachial arteries, I am inclined to believe that simultaneous ligation of the vein in reality makes little or no difference. If the common femoral artery is ligated, I am inclined to believe that it is wiser to close the wound without ligating the vein, to watch the extremity carefully for signs of impending gangrene, and to ligate the vein only after such signs are evident. From my own experience, I believe that ligation of the common iliac artery is not an indication for ligature of the common iliac vein.

CONCLUSION

Simultaneous ligation of the vein is not to be considered the preferable procedure in all arterial ligations. It is to be applied only in those instances in which without ligation of the vein gangrene would be expected. In these instances, the probable immediate beneficial effects in preventing gangrene must be balanced with the possible remote ill effects of chronic venous stasis.

Vanderbilt University Hospital.

PULMONARY NEOPLASMS*

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ANN ARBOR, MICHIGAN

Permit me first of all to express my appreciation of your invitation to meet with your Association and to enjoy and profit by your program.

In considering a subject of X-ray importance which might be fruitful of discussion I have selected the topic of "Pulmonary Neoplasms."

The increasing importance of cancer warrants the reiteration of even some of its obvious phases. We would like to review for a moment the general facts concerning cancer of the lung. It occurs most frequently between the ages of 40 and 70, the average incidence being highest between 50 and 60 years.

It is a disease found more frequently in males than in females, as Brekevolt in reviewing 1097 cases of primary lung carcinoma found 74 per cent in men as against 26 per cent in women.

While formerly considered a somewhat rare condition, Lubarsch in 1920 found that in 86,215 autopsies there were 8,301 cases of carcinoma, and of this total number of neoplasms there were 450 cases of primary lung cancer.

Among the interesting statistics of this country, those published by Weller, of the University of Michigan, show a gradual increase in the incidence of lung carcinoma. The earlier cases show a frequency of .1 per cent which has steadily increased so that in the last series it had advanced to .8 per cent. Some of the statistics in other clinics are even more striking, showing very conclusively that either cancer of the lung is on the increase or that its recognition is becoming more frequent. An interesting phase of the problem is the variety of its clinical manifestations which, while sufficient to class it as a definite clinical entity, often presents clinical aspects difficult of interpretation. This difficulty in diagnosis is due to the variety of structures involved in the thoracic cage and also to the fact that oftentimes the metastases to other parts of the body may produce symptoms which overshadow the pulmonary manifestations.

In general we may say that the subjective symptoms of cancer of the lung are, first, a chronic cough of gradual onset which at first may be non-productive and later mucopurulent with bloody expectoration. With the progress of the case there is a characteristic progressive loss of weight. Coincident with this is usually persistent and intractable thoracic pain. Naturally, as the disease develops there is dyspnea and frequently circulatory disturbances. As the cancer cells gain access to the lymph circulation there may be enlargement of the cervical glands. Obviously the physical findings on auscultation and percussion will vary with the involvement, and the enumeration of these we will leave for the pulmonary clinician.

The principal X-ray findings in cancer of the lung are, first of all, a direct shadow of the neoplasm. This can only be observed after the growth has attained a size which will cast a distinguishing shadow on the X-ray film. As the lumen of the bronchus becomes blocked by the neoplasm, atelectasis occurs with its characteristic X-ray shadow and which will be, of course, of considerable size. One should not mistake the atelectatic area as representing the shadow cast by the primary neoplasm. Infection may take place, and even necrosis, which will add to the complications of the X-ray findings.

The pleural changes may be both productive and exudative and frequently are present to

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

such an extent that they form a veil covering the intrapulmonary lesion. Displacements of the trachea and compression of the trachea may be present and also changes in the esophagus and the great vessels. For the direct demonstration of the change in the bronchial lumen the instillation of iodized oil has been found to be of great value. The X-ray studies in cancer of the lung should embrace the entire chest fields and should be studied both in the postero-anterior and lateral projections. There is an increasing tendency to make greater use of the lateral projection of the chest in the study of these conditions. X-ray films should be made of all parts of the body where symptoms suggest metastasis. Metastases to the spine and pelvis frequently produce symptoms which quite overshadow the pulmonary picture.

The tentative diagnosis of cancer of the lung should have as its basis the clinical features of the case with a complete analysis of the findings of auscultation and percussion. Naturally bronchoscopy with direct inspection of the bronchus and a biopsy of any suspicious intrabronchial growth should be carried out. Careful stereoscopic films both in the postero-anterior and lateral projections following the instillation of iodized oil will be of great value. If pleural thickenings are found on the fluoroscopic examination, plates should be made with sufficient penetration to get rid of some of the pleural densities permitting of at least a sketchy outline of the underlying pathology. If enlargement of any of the cervical glands is discovered, it is of great advantage to remove one for biopsy.

While the enumeration of some of these findings is helpful in a systematic study of a given case, still we must recollect that the clinical picture may be very confusing due to secondary infections, necrosis with cavity formation, complicated by pressure of metastatic nodules on important structures.

In reviewing some of the recent articles upon this subject the writer found that in one series of 29 cancers of the lung found at autopsy in one European clinic, only 6 had been diagnosed before death.

According to Ewing, primary carcinoma of the lung is of three different types; the first composed of cells having their origin in the bronchial epithelium; the second, composed of cells derived from the mucous glands, and the third, of cells derived from the alveolar epithelium. In order to illustrate some of the above mentioned points we would invite your attention to several cases which have occurred recently in the Michigan University Hospital.

REPORT OF CASES

Case 1. Evereste R., aged 46, occupation, mining engineer. His first symptoms began about 8 months before his admission to the hospital, when he complained of malaise and cough with a later appearance of mucus with frequent bloody expectoration. An X-ray was made which showed marked accentuation of the hilum shadows on the left side. Little importance was attached to this shadow and it was not until he entered a tuberculosis sanatorium that a suspicion of lung cancer was indulged in. An artificial pneumothorax was done which showed the increase in the size of the involved area with fairly characteristic X-ray findings of cancer. During this 8 months there had been a loss of 35 pounds in weight attended with considerable left thoracic pain. When the patient entered the University Hospital pleural fluid was found on the left side. He was given X-ray treatments over the left lung with a dosage amounting to 300R. This was attended by some reaction but relieved the thoracic pain. He was not seen again for a couple of months when it was found that his loss of weight was still progressive and that while his thoracic pain had been, to a great extent, relieved, he was suffering from anorexia and considerable pelvic distress.

In this case valuable time was lost due to the fact that the early clinical symptoms and X-ray findings were not stressed. While the thoracic pain was relieved by the X-ray therapy, it is probable that pelvic metastasis has already taken place. Though the patient is still alive, his general condition is growing progressively worse.

Case 2. John L., aged 71, coal miner. The important clinical history previous to admission to the outpatient department was of gradually failing health for four years. His clinical symptoms were dyspnea, hoarseness and a troublesome cough with sputum, often bloody. There had been a loss of 15 pounds during the last 3 months. Examination showed a paralysis of the left recurrent laryngeal nerve. A clinical diagnosis of cancer of the lung was made which was confirmed by autopsy 3 months later. The X-ray findings show a definite scoliosis to the left with a homogeneous shadow involving the upper left lobe, the density of which is due to the atelectasis, but a careful survey shows an area of markedly increased density in the area of the upper lobe bronchus. The pneumoconiosis which was present from his occupation as a miner is fairly well shown.

Case 3. Louis S., aged 48. At the time he entered the hospital there was a history of a loss of 30 pounds in weight. There was a cough of several years' duration with dyspnea, but the principal complaint was a dull pain through the left chest. X-ray studies showed a shadow in the upper left which was interpreted as a neoplastic mass with smaller areas through the lung fields suggestive of pulmonary metastases. A closer study of the plate showed a pathologic fracture through the distal end of the right clavicle. An interesting feature of this case was the variability of the temperature which ranged from normal to 102 degrees. There was also a paralysis of the left vocal cord with accompanying huskiness. No history after the patient left the hospital.

Here we have a carcinomatous mass involving the upper left lung field with definite metastases.

Case 4. Asa O. The next case is a patient aged 49, a laborer, unable to work for 7 months before entering the hospital. Pain in the arms, chest and back. There was dyspnea, hoarseness and drooping of the left eyelid. There was a complete paralysis

of the left vocal cord and a loss of 25 pounds in weight.

X-ray examination on entrance showed a wide mediastinal shadow with evidence of fluid in the lower half of the left pleural cavity. Aspiration showed a hemorrhagic effusion. Clinical diagnosis was mediastinal tumor. There was evidence of an erosion of the sternum. Patient was given deep X-ray therapy which gave temporary relief from pain. Death occurred 20 months after the onset of his illness. The autopsy revealed a primary medullary adenocarcinoma of the upper right lobe having its origin in an area of old fibroid pneumonia. There was direct extension to the superior vena cava and the aortic arch. There was also involvement of the pleura of both lungs-accounting for the hemorrhagic effusion. Metastasis in the perivertebral lymph nodes was present with adherence of the neoplastic mass to the under surface of the sternum.

Case 5. David B., aged 65, janitor. On admission the patient stated that he had lost 25 pounds in weight, and gave a history of anorexia, cough, precordial pain and swelling of the extremities. The duration of these symptoms had lasted over a period of 6 months.

X-ray examination showed an atelectasis involving the right upper lobe with adventitious shadows below, suggestive of pulmonary metastases. Inasmuch as there was a large lymph node above the right clavicle biopsy was done which showed adenocarcinoma. Patient was given X-ray therapy which did not cause any diminution in the density of the pulmonary shadows. His clinical course was characterized by irregularity in temperature with gradual loss of weight and strength. Death occurred about 1 year after the beginning of his symptoms. Autopsy showed a neoplasm involving the right upper and middle lobes. There was central necrosis and metastasis to the lower lobe of the right lung. The wall of the right main bronchus was greatly thickened with large tumor masses that spread out radially into the substance of the lung. The final microscopic diagnosis was adenocarcinoma of the mucosal type having its origin in the right main bronchus. There were metastases to the bronchial, cervical and mediastinal lymph nodes and also to the left fifth rib.

Case 6. Richard A., aged 38, colored, laborer. His complaint on admission was pain in his feet and legs. He had abdominal distress with shortness of breath and cough. There was cervical adenitis, expansion of the right chest with increasing dullness. The X-ray examination showed a globular shadow in the upper right lung field which was not pulsating. There was very definite protrusion of the aortic knob which on account of the patient's age was considered indicative of a luetic aortitis. A month later the plate showed marked increase in the shadow in the upper right with extension into the lower right lung field indicative of metastasis. There was a bulging upward of the right diaphragm suggestive of hepatic enlargement. No lateral plate was made, although fluoroscopically there was a globular pulsating tumor behind the heart shadow which had eroded the lower thoracic vertebrae.

At autopsy there was a carcinoma of the lung having its origin in the mucosa of the right main bronchus with metastases to the lower right lung with invasion of the bronchial nodes. There was an aneurysm of the descending aorta with an erosion of the bodies of the 9th and 10th thoracic vertebrae. There were metastases in the liver and

also in the skull. This case was particularly interesting on account of the difficulties in diagnosis due to the presence of two major pathologic conditions, namely, thoracic aneurysm and bronchial carcinoma.

Case 7. James S., aged 50, sheet metal worker. The chief complaint of the patient on admission to the hospital was pain in both legs and lower back of 9 months' duration with increasing severity. He had lost 60 pounds during this time. The clinical examination of the chest and abdomen was reported as essentially negative. No plates of the chest were made.

The X-ray studies of the lower spine and hips showed osteoclastic changes, especially about the right acetabulum and along the left pubic bone. Similar changes were found also in the right femur. These were interpreted as metastatic carcinoma. As the changes were osteoclastic and not osteoblastic the primary was not thought to be in the prostate and digital examination of the prostate showed no evidence of neoplasm. The patient was given deep X-ray therapy over the pelvis which gave partial relief from his symptoms. The patient died after an illness of 13 months.

The autopsy showed a neoplastic mass 3 cm. in diameter located at the root of the left lung infiltrating the mucosa of the left main bronchus. The neoplasm had spread in a radiating manner from the hilus. The lower vertebrae, sacrum and pelvic bones, and upper right femur were the site of metastases which had caused such an absorption of the lime salts that the bones could be cut with a knife. Pathological diagnosis, therefore, was, primary medullary small cell carcinoma of the left main bronchus with extensive metastases involving the pericardium, left lung, liver, pancreas and skeletal tissues.

This case illustrates that extensive cancer of the lung, especially in the hilum, may escape ordinary clinical investigation. It further accentuates the point that all cases presenting evidence of metastatic carcinoma should have careful radiographs made of the chest in order to rule out lung cancer.

Case 8. Jova A., aged 37, carpenter. The chief complaint on admission was substernal and abdominal pain of 7 months' duration. There was associated dyspnea, dysphagia and cough without sputum. At the time of entry there was a lump in the left supraclavicular region which was increasing in size. There had been a loss of 30 pounds in weight. X-ray studies showed a nonpulsating tumor filling the mediastinum and posterior cardiac space with constriction of the esophagus. There was infiltration in the lower left lung field.

The patient was given deep therapy which caused shrinkage of the supraclavicular mass but the mediastinal mass increased in size, as shown by the film made some 3 months later. Later in the progress there was a palpable mass in the epigastrium. Clinical diagnosis at the time of death was a malignant lymphoma. Autopsy revealed a medullary carcinoma probably primary in the mediastinum which had extended along the aorta and infiltrated the chest wall. Metastases were present in the lungs, pleura, bronchial, mediastinal, cervical and retroperitoneal lymph nodes. There was a chyloform hydrothorax.

The lateral plate showed the mediastinal mass to be located posterior to the ascending aorta and filling the posterior mediastinum.

Case 9. Arthur S., aged 49, laborer. The history was that 6 months before entry he developed a cough with thick yellow sputum. There was con-

tinuous pain in the right chest. After 2 months a lump appeared in the right chest which was painful and gradually increased in size. Patient complained of dyspnea and weakness and showed a loss of 10 pounds in weight. Examination showed a tumor over the right chest anterior to the 3rd, 4th, 5th and 6th ribs. There was definite clubbing of the fingers.

The X-ray examination showed a shadow in the lower right chest related to the right hilum and cardiac shadows. The lateral plate showed this mass to be in the anterior half of the thorax. Exploratory thoracotomy showed a globular mass which had infiltrated the right lower and middle lobes and the pericardium. The clinical diagnosis at operation was sarcoma of the chest wall infiltrating the right lung and pericardium. The autopsy showed a medullary squamous cell carcinoma of bronchogenic origin infiltrating the chest wall, lung, pericardium, and involvement of the heart wall to the depth of the endocardium.

Case 10. John N., aged 51, mechanic. The first complaint on entering the hospital was weakness on exertion with a history of cough commencing one year previously. There was never any blood in the sputum, but a loss of 30 pounds in weight with a dull aching pain in the right chest. The physical examination showed an emaciated man with physical signs of dullness and absence of breath sounds over the lower right chest. Purulent fluid was withdrawn on aspiration and on this basis a diagnosis of lung abscess was made.

The first X-ray examination showed the left lung field clear, obscuration of the left leaf of the diaphragm, loss of lung markings in the lower half of the right lung field. There was an adventitious shadow in the right hilum with projections radiating into the middle and upper lobes. Pneumoperitoneum was done which showed the spleen of normal size and a good air space between the liver and diaphragm on the right side. From the X-ray standpoint the opinion was expressed that the patient presented a carcinoma of the right lung. A rib resection was done for drainage of the abscess cavity and some material was removed and reported on as follows: chronic purulent, fibroid pneumonia.

Lipiodol injections after the pneumoperitoneum showed visualization of the left lower bronchus and the right middle lobe bronchus but no visualization in the right lower bronchus. Death occurred 7 days later and the autopsy showed a carcinoma in the lower right bronchus with a stenosis which had prevented the entrance of lipiodol. There was extensive metastasis. There was an abscess in the lower right lobe.

This case illustrates the difficulties of diagnosis where central necrosis with consequent abscess formation complicates the clinical picture of a lung carcinoma.

Case 11. Paul E., aged 50, laborer. Patient entered the hospital with a history of cough for one year associated with bloody sputum. There was a dull, continuous pain in the chest and abdomen. Patient lost 50 pounds in weight in the last 6 months and was now confined to bed. The X-ray examination demonstrated the right lung field clear while the left lung field was obscured by thickened pleura. On account of the typical clinical history a diagnosis was made of carcinoma of the left lung. Iodized oil was injected and the X-ray film made with sufficient penetration to uncover the thickened pleura showing partial obliteration of the lumen of the left lower bronchus with evidence of

atelectasis in the lower lobe. There was one area in the median half of the lower lobe into which the lipiodol did not penetrate. The lateral plate showed that the bronchiectatic cavities were in the posterior half. During the patient's stay in the hospital his temperature varied from normal to 102 degrees. Patient died 15 months after the beginning of his symptoms.

Autopsy showed that the left thoracic cavity contained no free fluid. There was marked thickening of the left pleura and this was densely adherent to the pericardium. There was a large abscess in the left lower lobe in the area which on the X-ray film showed no filling with iodized oil. The pathological diagnosis was a primary carcinoma of the left main bronchus with diffused extension throughout the left lung. There was infiltration of the pericardium over the left auricle and perforation of the left pulmonary vein. The bronchi were dilated from bronchiectatic cavities.

This case, we think, illustrates the advantage of iodized oil injections even in a lung field which on account of thickened pleura shows no pulmonary detail. In this case the stenosis of the bronchus was well outlined by the instillation of iodized oil.

Case 12. E. W., aged 40, school teacher. The first clinical symptoms were sharp pain in the back 14 months previously. An X-ray plate made of the thoracic vertebrae showed a destructive lesion of the 10th thoracic vertebra. Patient was given a plaster jacket and continued teaching. Her symptoms became more pronounced and she noticed a numbness in the feet and legs. She then entered a tuberculosis sanatorium where she remained for 5 months. She finally developed paralysis of the lower limbs. X-ray examination showed destruction of the 9th, 10th, and 11th thoracic vertebrae and destruction of the 10th rib at its articulation. At this time the patient was brought to the University Hospital. There was a fluctuating swelling in the lower back which was incised and neoplastic tissue was found infiltrating the intervertebral laminae. Pathological report on this tissue showed very vascular tissue infiltrated with small round cells. Patient died 15 months after the onset of her symptoms.

Autopsy showed a primary bronchial adenocarcinoma of the left lower lobe with direct extension through the pleura into the thoracic vertebrae. There were hematogenous metastases in the pelvis bones and liver.

This case illustrates that the patient may have a primary lung carcinoma with minimal symptoms but accompanied by metastases to the spine simulating Pott's disease.

The difficulties which arise in the diagnosis of lung cancer accentuate the importance of the recommendation recently made by the committee of the American Society for the Control of Cancer. This report by Doctors Ewing, Greenough and Gerster, recommends establishment of cancer institutes in different parts of the country to which obscure cases could be referred for diagnosis and treatment. While the prognosis in lung cancer at present is apparently hopeless still if the patients could be seen early there would be a greater possibility of instituting more potent types of treatment. The direct instillation of radon

seeds into the growth under bronchoscopic control is at present our most hopeful means of attack. A very few cases have been reported where favorable results have been obtained. However, one cannot expect any form of radiation to be of material benefit when the disease has progressed so far that extensive metastases are present.

The recent development of thoracic surgery also furnishes another hopeful possibility. With an early diagnosis lobectomy presents possibilities for treatment of the alveolar type.

SUMMARY

The cases reported illustrate some of the essential points brought out in the introduction. The most important of these, we think, are as follows:

1. The symptomatology of lung carcinoma is usually quite characteristic.
2. The clinical symptoms of a lung carcinoma may occasionally be unimportant from the patient's standpoint so that the clinical investigation may not be centered upon the thorax.
3. The metastases developing in the course of a bronchial carcinoma may cause striking clinical symptoms, especially when the metastases invade the vertebrae and pelvis. When there is clinical and X-ray evidence of skeletal metastases the primary focus should be looked for in the lung as well as in the prostate, breast, uterus, thyroid, etc.
4. Bronchoscopic and radiographic studies are important aids in the differential diagnosis. Diagnostic pneumothorax may be of great value in the study of lung carcinoma.
5. X-ray therapy has been proven to be of value in the alleviation of the patient's symptoms but has so far been disappointing from a curative standpoint.

I wish to express my thanks to Professor Weller of the Department of Pathology for some of the data for this paper and also to Dr. Howard B. Hunt of the Department of Roentgenology for valuable assistance in compilation of the case reports.

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UNDULANT FEVER

A CASE TREATED WITH ACRIFLAVINE INTRAVENOUSLY*

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Undulant fever has been known for ages under various names. It was known as Malta fever from its being first recognized in the Is-

land of Malta; Maltese, Mediterranean, Gibraltar or "rock," Neapolitan, Danubian and Cyprus fever (from the geographical distribution). In Texas and New Mexico it was known as slow fever, goat fever, Rio Grande fever, Mountain fever. It has also been known as Mediterranean phthisis (from the night sweats, etc.); and also called Bruce's septicemia or melitensis septicemia (after the etiology). The term "undulant fever" seems to have been universally accepted for the reason that in this disease the fever is protracted and shows wave-like accessions.

Judging from the large number of cases of undulant fever reported from Continental Europe and America we must constantly be on the lookout for this disease. Apparently the invasion into this country has been of recent origin.

ETIOLOGY

In 1887 Bruce¹ isolated an organism from the spleens of human cases that had died in the Island of Malta. He later called this organism "*micrococcus melitensis*." In 1905 this organism was found to be harbored by goats.

In 1896 Bang,² of Copenhagen, Denmark, isolated the *Bacillus abortus*, responsible for contagious abortion in cattle.

In 1918 Alice Evans,³ who recently contracted undulant fever while working with the disease, definitely demonstrated that the *micrococcus melitensis* of goats and of Malta fever described by Bruce, and the *abortus bacillus* of cattle discovered by Bang, were both bacilli and were culturally and morphologically identical.

Craig⁴ in 1905 described the first case of undulant fever in the United States, but this caused little concern until its prevalence was on the increase.

In 1924 a case of undulant fever due to the *abortus bacillus* was reported by Keefer.⁵ After this, numerous reports of other cases started coming in and the relationship of human undulant fever to contagious abortion in cattle was definitely shown.

Lately the *abortus* organism has been found in hogs. The entire group of organisms concerned is spoken of as the *Brucella* group. This includes *Brucella melitensis* (goat), *Brucella melitensis*—variety *abortus* (of bovine origin)—and *Brucella melitensis*—variety *abortus* (of porcine origin). These are apparently various strains of the same organism modified by the different hosts. Any of the three strains may cause undulant fever in man. These strains can only be separated by special tests, as agglutination absorption test.

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Infection in man takes place in drinking infected raw milk of goats or cows or partaking of infected milk products, such as cheese. Infection from hogs takes place through skin abrasions and occurs especially in slaughterhouse workers. Contagious abortion of cattle and hogs present the chief source in this country, goats playing a minor role. The source of infection may be difficult to establish.

SYMPTOMS

The incubation period of undulant fever averages two weeks. The prodromal symptoms may be so slight that the patient barely notices them. There is a general feeling of malaise, with anorexia, vague rheumatic pains in the limbs, with usually constipation. These gradually become more pronounced and the severe lassitude and headache, with fever going to 103 and 105 degrees, compel the patient to quit working. Profuse drenching sweats, occurring chiefly during the night, with fall of fever, are found in the majority of cases. The fever runs a wave-like course, but any type of curve may be seen, usually a remittent or intermittent type. The pulse is comparatively slow. The temperature is unusually high considering the pulse rate, the appearance and general condition of the patient. There is usually no disturbance in sensorium. The spleen is often found enlarged. Some of the cases have had pain and swelling in various joints, others only vague neuralgic or myalgic pains, or a lumbago or a sciatica. The blood may show a secondary anemia. Many of the cases show a leukopenia with a relative lymphocytosis. Epistaxis is seen frequently. Respiratory symptoms, bronchitis, bronchopneumonia or pleurisy may occur. The urine shows a febrile albuminuria. Some cases may terminate in twenty to thirty days. Others last months and even years. The disease produces marked prostration and loss of weight and the patient may be incapacitated for months.

DIAGNOSIS

Undulant fever is to be thought of in any continuous or prolonged fever. It is to be differentiated from influenza, typhoid, paratyphoid, typhus, malaria, tuberculosis, septicemia and subacute bacterial endocarditis.

The laboratory is our chief aid in making a positive diagnosis of undulant fever. The commonest and easiest method employed is serodiagnosis. An agglutination of the *Brucella melitensis* by the patient's serum in 1:80 or higher dilutions is considered positive.

The organism has been found in the urine and can be cultured from the blood. How-

ever, it seems to have been difficult to obtain positive blood cultures in the majority of cases. The blood should be drawn at the height of the fever.

An intradermal test for diagnosis has been developed. In 1919 Fleischer and Meyers⁶ first tried such a test using the filtrate from *melitensis* cultures. Recently, Burnet,⁷ of Tunis, reported that the intradermal test was very valuable, as agglutination tests often were failures in diagnosis of undulant fever, and this skin test picked up 15 per cent to 20 per cent more cases.

PROGNOSIS

The prognosis as to life is good but the prolonged disability is of the gravest importance and the dark spot in the prognosis. The mortality is about 2 per cent. The disease tends to be chronic with remissions.

TREATMENT

The prophylactic treatment is important. The *Brucellae* group of organisms is destroyed at 142 degrees for fifteen minutes, so pasteurization of all milk and cream is the essential thing. Where pasteurization cannot be carried out, boiling is advised. In slaughterhouses and in laboratory workers carefulness should be the watchword as here it amounts to a question of personal hygiene. The weeding out of cattle showing infection of contagious abortion would be ideal, but not practical as many, many herds are affected.

The general treatment is practically that of typhoid fever. Isolation and disinfection of excreta are carried out. Because of the prolonged fever a high caloric diet is desirable. Various special treatments have been appearing in the literature. Most of these reports cover single or very few cases.

Todd⁸ reports cure of two cases with mercurochrome intravenously. Awe and Palmer⁹ report three cures by intramuscular milk injections. Neosalvarsan, quinine, acetylsalicylic acid and hexamethylenamin seem ineffectual.

Giuffré¹⁰ reports cures in cases given vaccine of *Brucella melitensis*. Vaccinotherapy in undulant fever is appearing worth while. Recently Cambessedes and Garnier¹¹ report complete cures in twenty-nine cases by the intramuscular injection of large doses of *melitensis abortus vaccine*. From one to three injections of vaccine produced cures. Their vaccine was a protein extract of dried *Brucella abortus*.

Izar¹² in Italy and recently Darre and Lafaille¹³ in France reported the excellent results obtained by using acriflavine intravenously. Izar reported that intravenous injection of acriflavine (.01 gm. per kilogram of body

weight) acted favorably on the course of the fever, two or three injections producing a cure.

The French authors, reporting to the Paris Academy of Medicine, report complete cures using acriflavine. A single injection of .2 gm. caused the fever to subside in 24 hours. A relapse 18 hours later was dispelled in 24 hours by another injection. They recommend the first injection of .2 gm. This is followed two days later by a second injection of .3 gm. and three days after the second injection .4 gm. is given. Relapses should be treated in the same manner.

INCIDENCE

Several outbreaks of undulant fever have occurred. Yount and Looney¹⁴ reported five cases of undulant fever in Arizona in 1911. In 1922, Watkins and Lake¹⁵ studied and reported an outbreak involving thirty-five cases in Phoenix, Arizona. The cases occurred in consumers of raw goat's milk. Almost 20 per cent of the goats tested were found to be infected with *Brucella melitensis*. It was from material obtained from this group that Dr. Alice Evans began her splendid work.

Orr and Huddleson¹⁶ made a complete study of thirty-one cases occurring in Michigan. All of the patients had used raw cow's milk. Contagious abortion was found in the herds supplying milk to the majority of the cases. From a recent study of five hundred individuals who had an infected milk supply only 1.4 per cent showed evidence of infection and .8 per cent active infection. They conclude that the susceptibility of the human population to infection to *Brucella abortus*, bovine type, is very low and that human infection is determined by some factor or factors as yet undetermined. The low susceptibility seems to be responsible for the relatively low incidence of this disease.

Gilbert and Coleman¹⁷ report observations and studies of twenty-six cases in New York state. Raw infected milk from herds in which contagious abortion had been prevalent was the source. Six of the cases had splenic enlargement, three cases had a skin rash and four cases had bronchial involvement.

Farbar and Mathews¹⁸ recently report twenty-six cases from a college campus in Indiana. All cases had their origin in an infected dairy herd. After pasteurization was instituted there were no new cases. The patients were first diagnosed as influenza, or typhoid, or remittent malaria. One case suggested tularemia. Slow pulse rate and mild leukopenia were frequent findings.

Bellinger and Levin¹⁹ report an outbreak in the Oregon State Tuberculosis Hospital oc-

curring in May, 1928. These are the first recorded cases occurring in Oregon. Forty-three out of 180 patients reacted to some extent to the agglutination test, but there were five clinical cases. Origin was found in an infected milk supply.

Giordano and Ableson²⁰ report a serologic survey in Indiana. In doing tests routinely on one thousand blood specimens there were discovered fourteen active cases of undulant fever.

Blake and Oard²¹ in their study of three cases in Connecticut showed a porcine strain of *Brucella abortus*. In two of the three cases reported, infection took place in handling fresh pork in a slaughterhouse. They admit that, in the United States, milk is the factor of greatest importance, but one must not overlook or underestimate hog infection. Blumer²² also feels that at least in the Connecticut cases (ten in the past few years) the porcine variety is responsible.

Kampmeier²³ reports six cases in Michigan, three of bovine and three of caprine origin. The cases of caprine origin are apparently much sicker than the bovine cases.

A. V. Hardy,²⁴ Iowa State Epidemiologist, has made some very complete studies of undulant fever in Iowa. He reports on 125 cases occurring in Iowa during 1927 and 1928. Most of the patients came from rural communities. He believes that in Iowa, undulant fever presents a health hazard comparable to that of typhoid. The occupations involved were chiefly farmers and packing house workers. The importance of undulant fever as an occupational disease must not be overlooked. Hardy reviews the histories, symptomatology and the physical signs. There was a unique variability in the symptoms and course. There were four fatal terminations. Agglutination of 1:80 is required for a diagnosis.

The majority of Iowa cases were traced to infection acquired from cattle with contagious abortion, either through the ingestion of raw milk or by contact with diseased stock. Some of the cases seemed clearly to have had origin in infected hogs. From his investigation there is a probability that cattle in Iowa are infected by a porcine strain. Iowa's chief industry is hog raising. Different localities may show varying conditions of infection,—goat or cattle or hog infection.

Alice Evans has suggested that it would be worth while to investigate to what extent *Brucella melitensis* may be responsible for human abortions. So far, no abortions in pregnant women have been shown to be the result of *Brucella melitensis* infection.

An inquiry addressed to the various states

as well as to the U. S. Public Health Service yielded some very interesting information. Every state has had cases of undulant fever except five, namely: Idaho, New Hampshire, Utah, West Virginia and Wyoming. The Hygienic Laboratory of the Public Health Service at Washington, D. C., reported that the disease is rather widespread and is most prevalent in the Middle West. There are no exact official figures available on the prevalence in the different states as the disease is not required to be reported in many states and in most of those that do require such reporting the rule has been in effect only a short time.

Chart 1 shows the number of cases from the various states. Most of the cases were reported or discovered in 1928 and 1929. The Arizona cases enumerated date back to 1911 and to the 1922 outbreak. Thus it is clearly seen how widespread undulant fever is and how important it is to be on the lookout for it.

Table 1 Number of Cases in States

State	Number of cases	Remarks
Alabama	3	
Arizona	47 plus	35 cases in 1922 outbreak. Endemic in this state; 12 cases 1911 to 1913
Arkansas	1	In 1929. No previous cases
California	40	15 in 1927, 11 in 1928, 14 to June, 1929
Colorado	3	1928 and 1929
Connecticut	8	Reportable since July, 1928
Delaware	4	
Florida	0	Not reportable. No doubt present.
Georgia	43	39 cases in 1928
Idaho	0	
Illinois	30 plus	Have an Undulant Fever Committee
Indiana	35	In 1928
Iowa	211	152 cases in 1928, 59 cases to June, 1929
Kansas	24	
Kentucky	37 plus	13 cases in one outbreak Dec., 1927; 24 cases since then
Louisiana	8	3 in 1928, 5 to June, 1929
Maine	10	
Maryland	11	In 1928
Massachusetts	1	
Michigan	31 plus	
Minnesota	37	
Mississippi	0	
Missouri	50	Not reportable
Montana	4	1928
Nebraska	4	
Nevada	2	1928
New Hampshire	0	Probably present
New Jersey	7	1929
New Mexico	20 plus	Traced to goats; 1 case 1928. Cases as far back as 1920. One year 15 cases
New York	24	To March, 1928
North Carolina	2	1929
North Dakota	6	
Ohio	18 plus	August, 1928, to June, 1929
Oklahoma	1	
Oregon	5	In one outbreak 1928
Pennsylvania	4	3 in 1928, 1 in 1929
Rhode Island	1	In 1929
South Carolina	15	1 in 1927 and 1 in 1928
South Dakota	2	1928
Tennessee	2	2 cases 1928. Five cases in goat herders in 1911
Texas	7 plus	
Utah	0	
Vermont	3	2 in 1928, 1 in 1929
Virginia	3	1928. Probably many more cases
Washington	3	One each in 1927, 1928 and 1929
West Virginia	0	
Wisconsin	21	
Wyoming	0	
Total	788 plus	

REPORT OF CASE

B. P., a white man, aged 38, was referred to me by Dr. H. Sandperl. Occupation grocery and meat market business; business and residence in East St. Louis, Illinois.

Family history unimportant.

Past history.—Appendectomy in December, 1924. Uneventful recovery. Started to have acute abdominal attacks in right upper quadrant in 1927, which proved to be cholecystitis. Cholecystectomy in June, 1928, for cholecystitis and cholelithiasis (many small stones). Except for postoperative wound infection, recovery uneventful.

Present Illness.—On April 14, 1929, awoke "aching all over" and had high fever. April 15, felt very well in the morning but was very hot that night. On April 16 his physician made the diagnosis of "grippe" or "flu." He seemed to feel fairly well in the morning but had fever at night. Then chills would occur, followed by fever. Appetite was poor. Not ill enough to remain in bed. On April 21 again felt quite well all day. On April 22 had more chills and fever.

He entered the Jewish Hospital, St. Louis, on April 23 complaining as above—recurring chills, fever, anorexia, headaches.

When I saw the patient on April 24 he had been ill about ten days with irregular chills, intermittent or remittent fever. He did not look acutely ill. His sensorium was clear, even with high fever, and he did not feel sick enough to remain in bed although his fever had been as high as 104 degrees (rectal). With the drop in temperature patient would have profuse perspiration. It was also noticed that the pulse was relatively slow in comparison with the temperature, e. g., temperature 104 degrees, pulse 100. Constipation was present throughout the illness.

There was no jaundice. No nuchal rigidity. No pupillary changes. Tongue clean. There was present a diffuse generalized macular skin eruption of rose-red hue, confined to the chest wall, abdomen, thighs and legs. These lesions faded on pressure but looked very much like a typhus rash. The eruption faded out in about one week. The blood pressure was 110 systolic, 80 diastolic. Heart negative. Lungs were clear. The spleen was not palpable and there was no increase in splenic dullness. Abdominal scars of previous operations present. No masses. No tenderness. No edema. Reflexes normal.

The urine showed a febrile albuminuria. The white blood count on April 23 was 7,400, and later varied between 5,100 and 5,800. The red blood count was 5,160,000. Hemoglobin 90 per cent. Differential count: Polymorphonuclears 70 per cent; small mononuclears 29 per cent, large mononuclears 1 per cent.

Repeated search of the blood smears failed to find malaria plasmodium.

The possibilities at the first examination were: Typhoid fever, typhus, malaria, hilus pneumonia, septicemia, tuberculosis, undulant fever.

Quinine was given in full doses with absolutely no effect on the course of the fever.

Laboratory Reports.—April 25, Widal negative. Weil-Felix (for typhus) negative. April 27, Widal negative. April 24, stools negative for pus, blood, parasites. April 27, blood culture negative. May 2, Widal negative. May 2, stool cultures for typhoid group negative. May 3, Wassermann negative. May 4, second blood culture negative (after 7 days' growth). May 7, Schilling blood count

shows marked shift to left, indicating infectious blood picture. May 1, city health laboratory reports positive agglutination of *Brucella melitensis* in 1:80 dilution and incomplete (2 plus) in 1:160 dilution. May 8, Hygienic Laboratory of the Public Health Service, Washington, D. C., verifies the positive agglutination in 1:80 dilution.

Further Clinical Course.—The temperature curve was chiefly remittent with some intermittence. Sweats continued. "Aching in bones," soreness in leg muscles and knees, but with no redness or swelling at any time, were complained of.

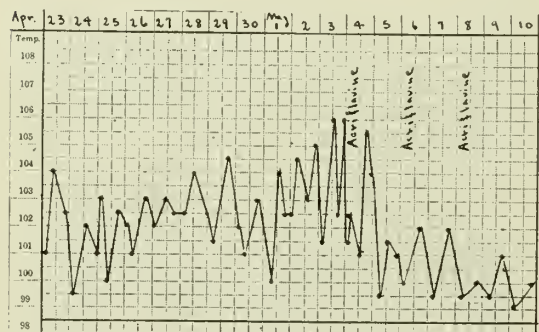
On April 29 developed sharp, severe pain in right side of chest in axillary line. He had a cough. At first a few crackling rales were heard here and in right base, and in a couple of days a distinct friction rub in right axilla was heard. On May 2 there were harsh breath sounds in right base with slight impairment of percussion in right axilla. The X-ray of chest on April 24 showed a mild degree of fibrosis and plate on May 1 showed practically the same. The pain in chest persisted only a few days and it was apparent that clinically the patient had had a mild pleuropneumonia on the right side.

The patient was extremely prostrated during the second week of his hospital period with spikes of fever going to 106 degrees (May 3). Epistaxis on May 3. Patient complained of severe joint pains. Spleen is not palpable and never became palpable throughout the entire illness. He complained of great weakness.

On May 4 at 4 p. m., 2 gm. of neutral acriflavin in 200 cc. normal saline (making a 1-1000 solution) was given intravenously slowly by gravity method. Patient vomited while injection was given. One hour later patient had a violent chill lasting about one hour, fever going to 105.5 degrees. On May 5 the temperature, which had been showing spikes of fever, came down to normal, going back to 101.5 degrees. On May 6 he received .3 gm. acriflavin and the same dose on May 8. Patient had no severe reaction after the last two injections, but complained of feeling hot and of having some abdominal cramps.

The day after the first injection of acriflavin the patient felt better. On May 9 the highest temperature was 101 degrees, and thereafter continued normal. Patient was discharged, recovered, and has remained well to date.

Chart 1. Temperature Curve.



Rectal temperatures. Effect of intravenous acriflavine. Temperatures were all normal after May 10.

The patient had forty days of disability, counting the ten days of fever before his hospital entrance, but not counting his convalescent period of a few weeks after leaving the

hospital. His entire febrile period lasted twenty-eight days. Weight at entrance to hospital, 145½ pounds. At discharge, 131 pounds.

Besides the acriflavin treatment, the management was practically that of typhoid fever. Typhoid precautions, fever sponges, ice caps, high caloric soft diet, forced fluids. Quinine in full doses early (therapeutic test for malaria) proved valueless. Hexamethylenamin had no effect.

This patient had no contact with cattle, hogs or goats. He had not partaken of raw milk, as his milk supply came from a regulated dairy where milk was pasteurized. He did handle meats in his meat market. Efforts to trace the source of his infection proved unavailing.

The interesting features of this case are: (1) Comparative comfort during the first two and one-half weeks of his attack. (2) A typhus-like rash. (3) No splenic enlargement. (4) Epistaxis. (5) Chills, fever, sweating. (6) Bone, joint and muscle soreness. (7) A mild pleuropneumonia. (8) Clear sensorium. (9) Apparent cure by acriflavine administered intravenously.

SUMMARY

1. There is presented a case of undulant fever with cure by acriflavin given intravenously.
2. The incidence of this disease in the United States is shown with apparently a great increase in the past few years.
3. All continued fevers should make one think of undulant fever as a possibility.
4. Undulant fever is apparently often diagnosed as typhoid, remittent malaria or tuberculosis.

730 Missouri Building.

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UNDULANT FEVER*1

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Undulant fever, or "Malta" fever as it is frequently called, is characterized chiefly by a long continued, intermittent fever. Cases of undulant fever encountered in the United States are probably largely due to infection from the *Bacillus abortus* of Bang, which causes the common abortion infection of cattle. The *melitensis* organism, which produces true Malta fever and is found commonly in the Mediterranean countries, is harbored by goats from whose milk it is transmitted to man. Human infection from this organism is probably very rare in America.

True Malta fever has been known for ages, but the transmission of bovine abortion infection to man was, until recently, seldom recognized.

For the past four or five years there has been increased attention given to this disease. Most investigators now feel that the cases listed as Malta fever in America in the past were probably true cattle abortion infections. The increasing frequency of reported cases of undulant fever is doubtless due to the wide publicity which it has received of late.

Statistics show a very high percentage of dairy herds infected with the Bang bacillus. It has been estimated that ninety per cent of the herds in the New England states, and from fifty to thirty-five per cent of those in the Middle Western regions are infected.

The mode of transmission to man is probably largely through milk. It has been shown that the human is probably infected only through the ingestion of large numbers of the organisms. A cow that is infected does not normally excrete a sufficient quantity of the bacilli to infect man. When a cow begins to go dry, however, the organisms are excreted in millions. It may be from this milk at this stage that the infection is transmitted. Recently Carpenter reported that in fifty-five pairs of human tonsils examined, seven of them showed infection with the bacillus of bovine abortion. This suggests the possibility of focal infection playing a role.

I will not go into any detail regarding the symptoms as they are well recognized. It need only be said that any prolonged, intermittent fever, which resembles typhoid and is characterized by loss of appetite and weight, headache, and very frequently joint pains, should at once come under suspicion. Temperature curves are quite variable, the peak usually occurring twice in twenty-four hours, and it is usually high in the mornings. Frequently there are afreble intermissions and chills, varying from distressing chilliness to severe rigors. There is often profuse sweating. On examination, about the only positive physical finding may be a palpable spleen; this is, however, not constant. There are many other symptoms which might be mentioned but they are not as common as those above outlined.

Examination of the blood shows that the white cells are either normal or decreased in number. There is frequently an increase in the number of mononuclear cells. The diagnosis is usually substantiated by the serum agglutination test. Positive blood cultures have been obtained but are more often negative, and the organism is difficult to cultivate. Specific agglutination tests can usually be obtained after the first ten days or so of the illness and then often in quite high dilutions. The usual agglutination test is carried out with a suspension of abortion organisms and varying dilutions of the patient's serum, in the same manner as the Widal test for typhoid fever.

One thing that I would like to bring to the attention of this audience is a very simple agglutination test which may be carried out in any doctor's office with very little equipment. This test is now being used by veterinarians in all parts of the country for the detection of this disease in cattle.

At the time I became interested in undulant fever, I called upon Dr. Erickson, of the Jensen-Salsbery Laboratories in Kansas City, who has had a very wide experience with this

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

1. From the Department of Pathology, St. Luke's Hospital.

disease in cattle. He was kind enough to furnish me with antigens, and when I wished vaccines he made them for me, and it is with his material and valuable suggestions that we were able to carry on our work.

The abortion antigen is a heavy suspension of organisms in ten per cent sodium chloride, which tests about nephelometer 50. A drop of this on a mirror, when mixed with a drop of the patient's serum, if positive, will produce a beautiful snow-flake flocculation, so marked as to be readily identified by even the most inexperienced. Should the serum be negative the suspension remains homogeneously cloudy and no flocculation takes place. The glass should be warmed to about body temperature, or perhaps a little higher, on a radiator or over a flame. The flocculation usually appears in from one to eight minutes. Should one desire to ascertain the measure of agglutinating power of the patient's serum, one need only dilute the serum with normal saline 1-10, 1-20, etc., which process has been carried as high as 1/2400. A drop of each dilution is mixed each time with a drop of the heavy suspension of organisms. In our experience, when the "rapid mirror method" is utilized and found positive, the slower methods of microscopic and macroscopic agglutination are always positive. This has been tested out in a series of many thousand cases in cattle. It is found that the rapid method is just as efficient as the slower methods. All positive tests which we have obtained by this rapid method have been sent to the United States Hygienic Laboratory at Washington and positive quantitative estimations were reported, paralleling ours in every case.

I think it is important to mention that we have tried to check the agglutinating power of our serum with a suspension of *B. melitensis* organisms. In almost all cases the *B. abortus* and *B. melitensis* showed similar agglutination figures. This doubtless accounts for the early errors in diagnosis of Malta fever, as the *B. melitensis* and *B. abortus* organisms cross agglutinate in about the same dilution.

Another possible source of error has been brought out by Frances. He has shown that tularemia serum will agglutinate the *abortus* organisms, and vice versa. This has been tested out in four of our cases with negative results. There is, however, no doubt that some cross agglutination between the two organisms exists. Hence, in case of doubt as to the diagnosis, and should the sera agglutinate both organisms, it has been found that the organism which is really responsible will always be agglutinated by a higher dilution of the specific serum.

Many different types of treatment have been used, varying from intravenous injections of mercurochrome and acriflavin to vaccines. Vaccines have been used in the treatment of true Malta fever in Mediterranean countries with varying degrees of success. Basset-Smith, who has done a great deal of work on this subject, states that this treatment is of questionable value in the late stages, and actually harmful early in the disease. On the other hand, we must remember that he was dealing with an infection due to an entirely different organism. There is only one report in the literature that I have found wherein vaccines were used from suspensions of the bacillus of Bang. The report is of immediate improvement and symptomatic cure. Moreover, there has been considerable success reported with these vaccines in cattle.

Knowing nothing else to do we obtained bacillus Bang cultures, using a mixture of four bovine and one swine strain. Dr. Fred Angle, shortly after I had found a patient in our hospital suffering from this malady, discovered a case at Bethany Hospital and secured a vaccine such as I have just mentioned. His results were so spectacular that it was suggested that this vaccine be used in the next case to come under our observation, which was a patient diagnosed clinically by Dr. P. T. Bohan as undulant fever. Dr. Bohan administered this mixed vaccine and the results were quite striking. Dr. Angle has had several cases and I have had the pleasure of seeing his temperature charts. The outcome in every patient was nothing short of astonishing. As far as I have been able to ascertain there have been ten cases in Kansas City and the surrounding counties in which this treatment was used, and all of them showed an almost sensational cessation of symptoms with apparent complete recovery.

The vaccine is administered as follows: One-fourth cubic centimeter for the first intramuscular injection. This amount is doubled every second day until one cubic centimeter is given. One cubic centimeter is the maximum dose. One cubic centimeter is then given until seven doses in all are administered. In the cases which I have been able to follow the patient was completely relieved after the seventh dose.

CONCLUSIONS

(1) Probably most cases of undulant fever originating in America are infections from the *Bacillus abortus* of Bang, and true Malta fever from *Bacillus melitensis* is quite rare.

(2) Human infections with bacillus of Bang, which causes the well known disease of

cattle, is transmitted to humans through drinking cow's milk and is probably quite common.

(3) A high percentage of dairy herds harbor this disease.

(4) In any long standing, unexplained fever one should suspect undulant fever.

(5) A rapid and simple agglutination test, which is outlined here, has been found efficient in the diagnosis.

(6) Treatment with vaccines, prepared from mixed swine and bovine strains of *Bacillus abortus*, has yielded almost spectacular results in a small series of cases.

St. Luke's Hospital.

FEIGNED ERUPTIONS*

JOSEPH GRINDON, M.D.

ST. LOUIS

Among skin conditions which at times test the diagnostic acumen of the physician, are the feigned eruptions. While the specialist is on the alert to discover them, the general practitioner is often unfamiliar with the tell-tale characters usually present and, although aware of the existence of such manifestations, he is as a rule loath to believe that his patient, apparently a sane and respectable person, is practicing a deception. As the patient is with rare exceptions a woman it seems all the more strange that she should deliberately and needlessly inflict upon herself painful injuries, often resulting in enduring scars. And yet such cases are not rarely encountered. I shall briefly recount a few that have come under my observation.

CASES ATTENDED WITH ULCERATION/

Case 1. A healthy looking and well developed young woman had been under treatment for some time for large, deep, suppurating ulcers on the chest and arms. The straight outlines and sharp corners of the lesions, their sudden appearance, as well as the fact that they conformed to no known disease, convinced me that they were self-produced, but the medical gentleman who had referred the case could not believe this possible. One day the patient came in with two new ulcers. One, over the left deltoid insertion, was a perfectly drawn five-pointed star, while the other was a crescent partly surrounding it, thus forming the Turkish blazon. This at last proved conclusive. The sores were probably made by rubbing with the finger moistened with saliva, not an unusual method.

Case 2. A woman of fifty-odd, the mother of married sons and daughters, was admitted to St. Mary's Infirmary. On the front of each thigh was a sloughing and discharging ulcer as large as a man's hand and extending down to the deep fascia. The sharp contours of the lesions, and some red

streaks where a caustic fluid had trickled down, assured me that they were self-induced, probably by repeated applications of phenol. The women's children on questioning admitted that their mother was "queer" and readily accepted my diagnosis. Under fixed irremovable dressings the ulcers soon healed.

Case 3 was much like case 2. A young woman, a member of a religious order, was admitted to one of our hospitals for a huge deep ulcer involving the front of the left thigh. Another, nearly as large, was situated just below the left mamma. Her manner struck me at once as, perhaps indefinitely but none the less clearly, different from that of other women in the religious life. There was anesthesia of the posterior pharyngeal wall. She was said to be an epileptic and had a seizure soon after entering the hospital, but the nurse's description of the attack made me feel certain that it was counterfeit. Being left alone with the patient for a few minutes I directly charged her with having intentionally produced the sores. While she denied this, she evidently realized that the deception was at an end. The nurse was instructed, when she next had a fit, to speak to her sharply and tell her to stop her foolishness, which at once had the desired effect. The ulcers rapidly healed under simple dressings held in place by a roller bandage, a blue pencil-mark being drawn down one side of the dressing so that its continuity would be broken if the dressing were disturbed.

Case 4. A young negro woman at City Hospital No. 2, presented lesions much like those of the foregoing cases, but not so deep or so extensive. There was anesthesia of the posterior pharynx. The ulcers readily healed under fixed dressings.

Case 5. That an intelligent physician can be deceived by such a patient is illustrated by the case of a young woman who was referred from another city and brought to me by her father. On the left hand and arm were a series of deep sloughing ulcers, covered in part by black, leathery eschars. Certain unmistakable signs showed that they were due to the application of a caustic. The patient, who was said to be of fair intelligence but "peculiar" and of a morose disposition, professed entire ignorance as to the cause, stating that they appeared suddenly and of themselves. The physician referring the case at first received my diagnosis in rather dubious fashion, but was later convinced.

Case 6. A young woman was brought to me for a dermatitis of the legs which I was at first at a loss to classify. I prescribed a soothing application, but when she returned a few days later the condition was decidedly worse. Even then I failed to recognize the case, but innocently remarked that I had seen just such a looking eruption from the application of an overstrong solution of mercuric chlorid. The patient at that protested so vigorously that she had used nothing but what was prescribed that my suspicions were aroused. It was found that she kept some bichlorid tablets concealed. Finding that she was discovered she made a temporary recovery, but I subsequently learned that she long after remained bedridden with deep, discharging artificially produced ulcers. She was said by her friends to be intelligent and a willing worker when not laid up.

Other like cases might be detailed but these will serve as examples. The diagnostic points in them were:

1. Exclusion of other conditions. The lesions will not fit into the picture of any genuine disease. After mentally reviewing

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

sypilis, tuberculosis, malignancy, pus infection, as well as the rarer infections, the case still remains uncatalogued.

2. Ulcers are usually round, oval, or, even if of irregular outline, are bounded by a succession of curved lines. Factitious lesions, on the other hand, are generally bounded by straight lines, often meeting at sharp angles.

3. Stains may be found, such as may be produced by acids, alkalies, or other caustics. Phenol is a favorite agent.

4. Often a red streak extends from one or more points at the margin of a sore, due to the trickling of an unskillfully applied agent.

5. The lesions occur at points that can be reached by the hand.

6. They appear suddenly.

7. The patient, usually a woman, will often possess stigmata of hysteria, such as anesthetic areas, or show some abnormality or peculiarity of manner which impresses the critical observer. Tactful questioning will often reveal that she is maladjusted, discontented, and unhappy.

Closely allied to the foregoing cases, in which there existed visible lesions, is another group in which the skin has been allowed to remain intact, or nearly so, but which from a psychiatric standpoint clearly belong in the same class. I shall cite three such illustrative instances.

REPORT OF CASES

Case 7. Alleged Hemorrhage From the Skin.—Rather late one evening a lady called me on the telephone, urgently requesting that I at once visit her daughter, a girl of seventeen, at a boarding school in the outskirts of the city, who had been suddenly seized with "bleeding from the legs." Arriving, I found the patient sitting up, a foot propped on another chair, while the leg was wrapped in many layers of towels. She was neither pale nor weak, nor apparently ill. On removing the towels I found each one marked with a red stain. Finally getting down to the skin, there was nothing to be seen but a very superficial pin-scratch. Now, odd bits of information accidentally picked up may at times find an unexpected use, and so it here proved. Among my patients was a lady who supported herself by china painting, and on my visits to her home I had become familiar with the appearance of the pigments employed. The stains on the towels I therefore readily recognized as being not blood but red china paint. I inquired of a teacher who was present in the temporary capacity of nurse, whether the young lady was taking any extra courses. "Yes she is taking art." "What sort of art?" "China painting." I learned that a supply of the materials was kept in her room. Finding a pretext to send the teacher from the room, I asked the girl whether she liked the school. At first she insisted that she did, but upon further questioning broke into tears and said she wanted to go home, which upon my recommendation she was allowed to do. Later she

developed a linear ulceration of the mucous surfaces of the lower lids, which was produced by sawing the everted lid with the finger-nail.

Case 8. Alleged Blue Sweat.—A young woman, a member of a religious community, was thought to excrete blue sweat. This, which was not pale blue or bluish but of a pure, deep, brilliant blue, appeared only on the lower lids. When carefully wiped off it immediately reappeared, although not present at all times. Some cloths with which the secretion had been wiped off were furnished me. I took them to the Rev. Father Cooney, Professor of Chemistry at the Medical School of the St. Louis University, and together we worked out the problem, and found, (1) that a blue pencil (Bayless china pencil No. 19) drawn over the cloth gave exactly the same tone and tint. It was Father Cooney's opinion that the pigment in the pencil was Prussian blue (ferric ferricyanid), and so it proved to be; (2) a solution of this salt in a test-tube at the proper concentration, when dropped on the cloth, gave exactly the same tone and tint as the pencil marks and the "sweat." The three stains were indistinguishable; (3) a solution of sodium hydroxid (NaHO) dropped in the test-tube at once decolorized the solution. A little placed with a glass rod on the pencil mark produced the same result. Placed on the original stains it again gave a precisely similar reaction; (4) a few drops of acetic acid added to the decolorized solution in the tube at once restored the original color. Applied to the decolorized portion of the pencil mark, same result. Placed on an original "sweat" stain, where decolorized by the sodium hydroxid, again the same results; (5) a solution of methylene-blue, perhaps as close an approximation as one could get to the ferric ferricyanid color, was not affected either by the acid or the alkali.

We concluded (1) that the stains on the cloths were due to ferric ferricyanid; that the pigment in the pencil was the same salt (probably some other blue pencils and "crayolas" contain the same salt); (2) that this salt could not be produced by secretion from the skin and (3) that a piece of blue pencil concealed in a handkerchief and surreptitiously applied to the skin would produce the observed result, although of course the ferric ferricyanid might have been obtained from some other source.

I suggested that a fixed crinoline bandage be applied over one orbit for twenty-four hours, adding a cotton-collodion dressing from the lower border of the bandage to the cheek so that nothing could be pushed under it without visibly disturbing the dressing. Needless to say, no blue sweating occurred on that side.

Case 9. Ground Glass Working Out Through the Skin.—An intelligent and successful Jewish merchant from Arkansas consulted me about his sister, a single woman approaching middle age, apparently in good health and an active and unusually efficient business woman. Some months before, while lunching at a restaurant, she felt a hard substance crush between her teeth and inadvertently swallowed it. She at once concluded that it was glass, and declared that ever since then ground glass had from time to time "worked out" through her skin. The brother admitted that my arguments against the possibility of such a thing seemed sound, but set against that the fact, so he said, that he had himself seen the glass coming through, and promised, upon his next visit to the city to bring some of it, which he did,—a pill-box about half full. It looked like Epsom salts. On adding a few drops of water to some crystals, these immediately dissolved. The taste was unquestionably that of Epsom or some

similar salt. It was an easy matter to have a little of it in the hand and spread it on the skin.

The cure of these cases is necessarily psychiatric and consists first, in unmasking the deception in a manner convincing to the friends and relatives; and second, in correcting if possible the patient's maladjustment to her environment. Those factors inherent in the patient's make-up must remain.

SUMMARY

1. Attention is called to the relative frequency of feigned eruptions and to the fact that their recognition often escapes the general practitioner.

2. Six cases are related in which actual lesions of the skin were present, generally ulcerative.

3. The diagnostic points in such cases are enumerated.

4. Three analogous cases are related in which actual lesions were absent, one of alleged hemorrhage from the skin, one of alleged blue sweat, and one of alleged secretion of ground glass.

5. The treatment of such cases is indicated.

Lister Building.

TREATMENT OF ACUTE EMPYEMA COMPLICATED WITH BRONCHIAL PISTULA

According to Ralph B. Bettman and Nathan N. Crohn, Chicago (*Journal A. M. A.*, Dec. 22, 1928), a bronchial fistula that occurs in actual pleural empyema almost invariably closes after artificial drainage has been established. Allowance can be made for the escape of pus and air from the pleural cavity and yet the consequences resulting from an artificial open pneumothorax can be prevented. The closed method of drainage is just as desirable in cases complicated with bronchial fistula as in the uncomplicated cases of acute empyema.

YELLOW FEVER VIRUS

Henrique De Beaurepaire Aragao, Rio De Janeiro, Brazil (*Journal A. M. A.*, Feb. 16, 1929), reports that yellow fever occurring in Brazil has been successfully transmitted to *Macacus rhesus* and also to *Macacus cynomolgus*. The gross and microscopic pathologic changes produced by the South American virus in these animals are fully comparable to the lesions produced by the West African virus in rhesus monkeys, as described by Stokes, Bauer and Hudson. Furthermore, comparison of sections of liver from *Macacus rhesus* infected with West African virus, brought to Brazil by Dr. Carlos Chagas from the Pasteur Institute of Paris, has not shown any distinguishing features in the lesions. *Leptospira icteroides* Noguchi was not found in two infected monkeys studied.

WASHINGTON UNIVERSITY CLINICS

THE GENERAL MANAGEMENT OF THYROTOXICOSIS*

DAVID BARR, M.D.

From the Department of Medicine of Washington University and the Medical Service of Barnes Hospital.

During the past decade there have been many changes in our conceptions concerning the treatment of thyrotoxicosis. Iodine, which was for many years considered dangerous, is now regarded as one of the most useful drugs. Digitalis, formerly very generally employed to control the tachycardia of the disease, is at present in questionable repute. A few years ago thyroidectomy was, with justice, included among the more serious operations. Now, with the best preparation and in the hands of excellent surgeons, the operative risk has diminished to about one per cent. Treatment by radiation has been tried and we are now in a position to evaluate its effectiveness. The extensive use of iodine has enabled us to study rapid changes in thyroid structure and has materially increased our knowledge of the pathology of the gland. This in turn has modified in many important respects our treatment and management.

It can be stated without exaggeration that much of the present success of thyroid surgery is based upon medical management; upon correct preoperative treatment and after-care. In consideration of our accumulating knowledge and rapidly changing ideas it may not be superfluous to discuss the general management of thyrotoxicosis and to attempt an evaluation of some of our more important therapeutic agents. Since it is partly from personal clinical experience that such a discussion can be valuable there will be of necessity some emphasis on our practice and beliefs in the Medical Department of Washington University.

The cause of toxic goiter is unknown. It cannot be stated with assurance that the thyroid gland is primarily concerned. Thyrotoxicosis may, conceivably, be only one of the expressions of a more general disease. But while its nature is in many respects shrouded in mystery, there are several facts sufficiently well established to be of great practical importance. Most of the symptoms may be simulated by the injection or feeding of thyroid extracts. The character of the disease may be abruptly and often completely changed by extirpation or destruction of a large part of the functionally

* Read before the St. Louis Medical Society, April 17, 1928.

active elements of the thyroid gland. One form of thyrotoxicosis, exophthalmic goiter, seems to have a self-limited course in which the symptoms increase rather rapidly to maximum severity and then gradually subside until they end in complete quiescence. While the disease is still active, great damage may be done to the body and particularly to the heart. During this time the most rigid protection of the patient is essential.

Upon these premises, our ideas of treatment are largely based. Three main courses for general management may be mentioned:

(1) Rest treatment, with such medication as is indicated from time to time for the relief of symptoms,—a regime involving the protection of the individual until such time as the disease may spontaneously cease to show active manifestations.

(2) The use of X-ray or radium with the idea of destroying a considerable portion of the functionally hyperactive thyroid tissue.

(3) Extirpation of a large part of the growth by operation.

When a choice of management is possible, justification for continued rest treatment is based either upon the supposition that rest and medicaments will cure the disease or upon the belief that the malady has a self-limited course for the end which it is permissible to wait. While one may hope that rest will cure, there is little positive evidence to support the idea. On the other hand, the belief in a self-limited course has had the sanction of many competent observers, possibly the most prominent of whom was the late Dr. Hoover,¹ of Cleveland. Concerning the duration of the course there is unfortunately no agreement. I personally have seen an untreated case of exophthalmic goiter extremely thyrotoxic after twenty years, an experience sufficiently discouraging for the patient who is being treated by rest alone.

Treatment by X-ray is often effective. Possibly the best evidence of its active influence on the gland rests upon the occurrence of clinical myxedema which has not infrequently followed its use. On the other hand, the effects of X-ray are extremely irregular. In the most favorable cases its influence appears insidiously and does not reach a maximum before several weeks have passed. Some patients are scarcely affected by it.

Extirpation of the thyroid by operation is the only method of treatment which causes with any regularity a sudden favorable change in the clinical course. Permanent arrest of symptoms occurs in a large percentage of cases. Even in those who retain some evidences of intoxication the severity of the disease is modified. The distressing recurrences

which may follow operation in a few patients cannot negative the excellent results which are observed in others. Moreover, the operative mortality in the hands of the best surgeons is now so low that the trial of operation seems justifiable in a large proportion of cases. To most patients, the length of time away from work and family is of paramount importance both to themselves and to their dependents. To this larger group it is our usual custom to advise operation, the only exceptions being those on whom for one reason or another the procedure would involve too great a risk. Our discussion, therefore, will concern itself very largely with this group and will be focused chiefly upon the preoperative and postoperative medical care.

Too much emphasis cannot be placed on the psychological factors in the management of thyrotoxicosis. The incidence of the condition is greater in people of intelligence. It is seen much more frequently in women and particularly in those who are active, ambitious and impatient. At times the transition from health to disease is scarcely noted by the patient. She becomes more ambitious, more impatient, engages more actively in household duties, in sport or society and notices as unfavorable signs only nervousness, a greater fatigue at the end of the day and a loss of weight. Her friends may be the first to notice her commencing exophthalmos or the early signs of swelling of the neck. While the thyroid patient may be annoyed by her too easy fatigue, while she may be very anxious to know the truth about her condition and may be worried at the thought of having a goiter, she is as a rule surprisingly free from any neurotic symptoms. Imaginary fears, unconscious motivation, are truly rare phenomena in the symptomatology of thyroid disease. The fear of goiter and the anxiety concerning it are sensations largely confined to neurotic individuals who have none of the signs of thyrotoxicosis. On the other hand, the typical thyroid patient is extremely susceptible to suggestion and is influenced to an unusual degree by her surroundings. An attitude of gloom or uncertainty on the part of the physician may be very detrimental to her welfare. Cheerfulness, optimism and bright surroundings have a most beneficial effect.

With full knowledge that our procedure presents no originality and without the desire of emphasizing unduly any particular feature, I shall briefly outline the approach which is carried out in our clinic. As soon as acquaintanceship with the patient is established the main circumstances of the disease are detailed to her. It is stated that the condition is cur-

able, that she is in no special danger. It is emphasized, however, that thyroid intoxication is essentially a chronic affair, that arrangements must be made for a prolonged period of inactivity. Helpfulness concerning these arrangements have gone far in establishing the confidence of the patient. It is pointed out that the best chance of rapid termination of the illness rests in operative procedure. That while the disease may be to a certain extent self-limited, treatment without operation will probably require many months and possibly several years of rest before she can expect to return with safety to her occupation. It is emphasized that in possibly 90 per cent of the cases operation cuts the disease short and allows the patient to return to her work. The patient is assured that in this particular clinic operation is not performed except in those cases in which the risk is very slight. It is represented that an operation for goiter in the best hands and under these conditions is scarcely more dangerous than the crossing of a busy street at noon-time. The operation is represented as a goal. If the patient can become quiet enough, can improve enough, can increase her nutrition sufficiently, operation may be safely attempted. Throughout the rest period the condition of the patient and the operation are freely discussed, the patient is often allowed to speak to people who have had operations, to meet those who have recovered their health. Without attempting to compare the method with others it may be said that most patients respond very satisfactorily to this sort of confidence.

Effective rest is a necessity in thyrotoxicosis. It is, however, by no means easy of accomplishment. Impatient, ambitious people are inclined to rest badly. If they are kept in bed their restlessness may become extreme. Complete inactivity is out of the question in many patients and the attempt to enforce it is, I believe, one of the principal causes of failure in medical management. To be sure, patients should remain in bed. In the great majority of cases even toilet privileges should not be granted. If, as is usual, a bed-pan causes difficulty, a commode can be brought to the bedside. Recumbent posture, however, is by no means essential. The head rest of the bed should be elevated by the attendant several times each day in order that the patient may carry on certain activities in a comfortable position. These activities may consist of reading for short periods, or of performing hand work which involves no fine motion and no eye strain. For this purpose the recent developments of occupational therapy have been of great assistance. The occupational thera-

pists who now frequent our hospitals have many simple, easy things which they may offer to patients. Among these may be mentioned basketry, weaving and even the hooking of rugs. If this sort of treatment is undertaken, certain things must be strictly avoided. Because of the tremor of thyroid disease, fine motions, drawing, any sort of fine embroidery, anything involving a high degree of coordination, is extremely fatiguing. A strict limit must be placed on the time allowed for the work and for two reasons: first, because of the danger of fatigue and, second, because the patient will look forward with pleasure to the task if she is never allowed to do as much as she wishes. To the patient, however, it must be emphasized that the work is for pleasure only, and for the purpose of saving her from boredom. She has no obligation concerning it. It is not necessary for her to finish anything she starts. When the activity is carefully chosen, and the articles are either beautiful or interesting, there is seldom a tendency on the part of these ambitious people to lay down the work which they have started. Whenever possible a portion of each day should be spent in the open air. Sunlight for short periods may be extremely soothing. Ordinarily, short periods of reading, the occupational therapy and the change of location from sick room to porch occupy the patient's day sufficiently to prevent boredom and to assure a good night's sleep. During the first week it may be well to give small doses of a sedative. For this purpose luminal in doses of $\frac{1}{4}$ grain four times each day is ordinarily sufficient. If more sedation is necessary a second drug, such as adalin, is selected.

Since Plummer's epoch-making article² concerning the use of iodine, we have regarded this drug as essential in the safe preparation of the patient for operation. We are now in possession of many extremely important facts concerning its action. We know that the beneficial results are most striking in exophthalmic goiter. In the condition which Plummer has called toxic adenoma the effect is less impressive. Its use in exophthalmic goiter is obligatory. It is accompanied by no detrimental effects in toxic adenoma. Since the differentiation of the two forms is sometimes difficult, it has been our custom during the past three years to use iodine in the preoperative preparation of all cases of thyrotoxicosis. During the first weeks of its administration very little change in the patient's condition is observed. In patients with exophthalmic goiter improvement begins at the end of the first week. The clinical picture of the disease changes in a most remarkable manner.

The patient becomes quieter, the pulse slower, the tremor tends to disappear and the metabolic rate is decreased. The improvement may reach its maximum at any time from the tenth to the twenty-first day. For the period of the next week or more there is little change in the patient's state so far as symptoms are concerned. Then the basal metabolic rate tends to rise, the pulse increases in frequency, the patient gradually becomes more nervous. From the standpoint of symptoms, therefore, it is desirable to operate from ten days to three weeks following the first administration of iodine. If the iodine is discontinued and recommenced at the end of two months or more, a second period of benefit will result. If, on the other hand, iodine be given continuously no marked fluctuations in the symptoms can be expected. Because of this peculiar behavior of iodine, we have usually allowed a preliminary period of rest before the drug is started. For any of us it takes a certain time to become accustomed to a new environment, to new food, to new people. This period is considerably prolonged in nervous patients. If iodine is started on the day of admission to the hospital it may have caused its maximum benefit in ten to fourteen days. The patient however may still be restless, uncertain and alarmed, not because of her disease but because of her failure to react properly to the environment.

Two benefits of the most fundamental importance have resulted from the proper use of iodine. The much dreaded thyroid crisis with its hyperpyrexia, extreme tachycardia and mania was probably the most frequent cause of death following the thyroid operations of the past. The crisis will not occur in patients who have received sufficient iodine. It is true that postoperative fever and acceleration of pulse rate still occur, but this reaction seldom, if ever, reaches a dangerous stage.

The mortality from operation is decreased in another manner which is not so often emphasized. The thyroid gland in untreated exophthalmic goiter contains little colloid, is extremely vascular, is easily friable. Its tendency to bleed results in much extra manipulation and damage to surrounding parts. The administration of iodine completely changes its character. The acini become filled with colloid, the gland becomes firmer, less easily torn, amputation is accomplished with slight hemorrhage. For this reason it must be kept in mind that a patient with exophthalmic goiter is a much better surgical risk several weeks after the first administration of iodine, even though the symptoms, such as rapid pulse, increased metabolic rate,

tremor, may have changed unfavorably after the first rapid improvement.

The form of iodine employed by Plummer was, as every one knows, Lugol's solution and it has become the custom throughout the country to employ this preparation. It is scarcely known whether it has any special advantage over other forms of iodine. For most patients it is not unpleasant to take when given diluted with one half glass of water or milk. It accomplishes most striking results and there seems little reason for substituting other preparations. We usually administer it in doses of ten drops three times a day between meals. If given with meals it will, of course, combine with any starches present and form a starch iodine compound, the absorbability of which, as far as we know, has not been determined.

Tachycardia is the almost constant accompaniment of thyrotoxic states. In the past it has been the custom to attempt a slowing of this rate by means other than rest. Digitalis has been the drug of choice. In many clinics maximum doses of digitalis have been given as a part of the preoperative care and as a preparation for the operation itself. In considering the problem of the slowing of the heart action it is necessary to keep several facts in mind. In thyrotoxicosis the rapid pulse is usually not an expression of disturbed mechanism or a weak myocardium. On the contrary, it represents a natural response to increased activity and during the early stages of the disease may be likened with entire propriety to the effect of exercise. With the increased oxygen requirements a greater circulation rate is necessary and this is accomplished at least in part by a more rapid heart rate. The best evidence of this rests in the observation that the increase in the metabolic rate parallels very closely the increase in pulse rate. Under these circumstances it is no more rational to give digitalis to a patient with thyrotoxicosis than it would be to digitalize a long-distance runner. In hearts which are not damaged by organic changes it is unlikely that a rate rapid within the limits of thyrotoxicosis is dangerous. In many patients with thyroid disease it may be impossible to produce a slow pulse. It is a common experience to give digitalis in amounts sufficient to cause toxic symptoms without important or even demonstrable effect on the cardiac rate. Under these circumstances the use of digitalis would seem to accomplish nothing more than the addition of a second toxic agent to a heart already overstimulated. Moreover, if with digitalis we are successful in slowing the rate, the heart will be forced to propel more blood with each beat. The

ventricles will be more completely filled with each systole, a result which may not be beneficial to a heart already under strain. To these considerations may be added the belief of Plummer that the use of digitalis as a pre-operative measure is detrimental and actually increases the mortality from operation.

*With a heart in auricular fibrillation the theoretical indications for the use of digitalis are more compelling. Even in these cases, however, digitalis may cause no appreciable slowing of the rate if at the time there is an active thyrotoxicosis. Our procedure has been to furnish for the patient with irregular heart, rest as complete as possible with the hope that this may itself cause sufficient slowing of the heart. If this fails, it is entirely permissible to give digitalis in sufficient doses during the entire preoperative period. Such a patient always presents a more serious operative risk and it is sometimes wiser to employ X-ray treatment. If, however, extirpation is to be attempted it is useless and possibly dangerous to force the dosage of digitalis immediately before the operative procedure.

One of the most striking phenomena of thyrotoxicosis is the increase in metabolic rate which requires, of course, an increased daily consumption of food stuffs. The food requirements of each patient must be determined by experiment inasmuch as they include not merely the needs which are indicated by the basal metabolism but depend also upon the degree of activity. Thus it happens that a patient whose basal metabolic rate is fifty per cent above the normal may require much more than a fifty per cent increase in food consumption. For a patient normally at rest in bed 3500 calories may be barely sufficient to maintain him in equilibrium. Ordinarily the thyrotoxic patient has a splendid appetite, is cooperative and is quite willing to clean his plate. The matter of adequate nutrition may, however, be complicated by gastro-intestinal symptoms. Vomiting and diarrhea are not uncommon in the severest cases which are, of course, the individuals who require the largest food intake.

In recent years surgeons have emphasized more and more the necessity of adequate nutrition preceding operation. Of all patients who come to the surgeon, nutritional preparation is perhaps most important in thyrotoxic individuals. In these extremely overactive people there is always a tendency to depletion of glycogen stores. One of our patients who became pregnant during thyrotoxicosis was shown to have almost no glycogen reserve at a time when she had been taking a diet which was presumably adequate.³ In the treatment of thyrotoxic states the necessity of maintain-

ing an adequate nutrition cannot be too strongly emphasized. This is most important during the two weeks preceding operation. A high caloric diet with extra feeding is provided and the weight of the individual is frequently taken during the entire preoperative period. A continued tendency to lose weight under treatment may constitute a contraindication for operation.

The preparation on the day of operation must be as simple and quiet as possible. We have not, however, felt the necessity of establishing any routine in the matter. The operation has already been discussed many times with the patient. She knows about when it will occur. She realizes that it involves no great risk. The patient is never moved from her own room or ward for operative preparation. On the morning of operation she is given a hypodermic, sufficient to cause extreme drowsiness and indifference. The second hypodermic is given before she starts for the operating room.

During the period immediately following the operation the state of the patient must be watched with the greatest care. While the thyroid crisis is now a comparatively rare event, the possibility of its occurrence must not be overlooked. It develops rapidly, its symptoms are terrifying, treatment cannot be delayed. Death may occur from this cause within 24 hours of the operation. Large doses of sodium iodide by vein are most effective in controlling the symptoms. A teaspoonful of Lugol's solution may be given in water by rectum. Sedatives in large doses may be necessary.

The state of the circulation must be watched with great care, particularly in such cases as may be classed as toxic adenoma. Transient fibrillation is not uncommon even in patients who have never shown this phenomenon before operation. The most expert nursing is essential during the week following operation. The patient should be spared every possible annoyance, all unnecessary movement. Nourishment should be started as soon as she has recovered from the anesthetic and should be forced as far as is possible without causing nausea. Even in patients who do not develop the typical thyroid crisis the metabolic activity is increased and the food requirements are much greater than before operation. For one week following operation the symptoms of nervousness, rapid pulse, restlessness, may be greater than they were previously, a condition which is usually attributed to the manipulation of the gland at the time of operation and to the forcing of thyroxin into the circulation. It is well known that the action of thyroxin on tissue cells is not immediate. Its maximum may be reached only after many hours and its

effect may be notable one to two weeks after its injection. As a consequence the improvement which may result from operation cannot be judged during the first ten days and can only be guessed at during the first three weeks.

Too little has been written concerning the prolonged after-care of thyroid patients. Possibly the best clinical work on thyroid disease has been done in large clinics of great and deserved reputation where the patients have been brought from a distance. There the patients are treated most expertly during their operative period but are lost from sight on their return home shortly after the operation. For this reason our data concerning the after-results of operation are not complete.

Concerning the factors which are involved in compensatory hyperplasia of the thyroid and in the distressing recurrences which may follow operation, we have scanty knowledge. Two questions are of particular importance. The value of iodine in preventing compensatory hyperplasia is not definitely known. The effect of infections upon the thyroid gland and their influence in the recurrence of symptoms urgently needs further investigation.

The experimental results concerning the effect of iodine on compensatory hyperplasia leave us in doubt as to whether or not iodine should be continued following the operation. It is known that after subtotal thyroidectomy there is in many cases a tendency to compensatory hyperplasia of the remaining gland tissue. It is likely that this hyperplasia, when carried beyond the necessary requirements of the body, leads to the distressing recurrences of the disease. If the administration of iodine can prevent this, iodine should be used continuously after operation. Clinically its efficacy in preventing recurrence is by no means proven. It is our custom at present to administer iodine to all patients for a period of at least six months following thyroidectomy.⁴

The question of infection in its relation to thyrotoxicosis offers many difficulties. A great number of young individuals with thyroid disease have pathological tonsils and give the history of repeated attacks of tonsillitis. Some date their active trouble from tonsillar infections. Perhaps less frequently patients are found with active infection of sinuses and teeth. The question of the causal relationship of these infections has not been clearly demonstrated. The recent experimental work of Cole and Womack⁵ from the Department of Surgery of Washington University has a definite bearing. They find that the toxins of bacteria may cause structural changes similar to those observed in exophthalmic goiter and that, under the influence of infection, the iodine

content of the gland is diminished just as it is in thyrotoxicosis. Clinically the evidence is not so clear. It seems likely that an infection may induce changes in a predisposed individual. It is not often demonstrable that the infection is the primary cause. That bacterial intoxication may add to or aggravate a thyrotoxicosis already established there can be no reasonable doubt. An instance, not by any means isolated in our experience, may be cited. A woman of 32 with a long history of attacks of tonsillitis developed exophthalmic goiter and submitted to a thyroidectomy. Following her operation she was free from thyrotoxic symptoms, her pulse became normal, her gland could not be felt, her tremor disappeared, her basal metabolism was entirely normal. Under observation she developed an acute tonsillitis. Within two days her gland was large and soft, with a loud bruit. The pulse became rapid. The tremor recurred and a metabolic rate taken as soon as the temperature had become normal was +45. This case emphasizes the necessity of removing obvious foci of infection during the postoperative period. This is particularly important, I believe, in cases of tonsillar infection, but applies to other areas in which active infection can be demonstrated. Whenever possible removal of foci should be accomplished before the patient has returned home. There is always a tendency to delay work of this kind if the general health is improving.

It is our belief that all patients who have shown active thyrotoxicosis should be most rigidly protected and under constant observation for at least six months and probably twelve months following the operation. During this time, protection does not connote complete rest. Some occupation should be furnished from the start, and should be increased under most careful observation and supervision. It is quite possible that for many mental workers return to almost full occupation can be permitted after a few weeks. This must be determined largely by the patient's reaction. On the other hand, it must be recognized that occupation undertaken at the patient's volition is a very different thing from the assumption of responsibility which involves others and which is dependent upon the whims and demands of others. As a rule strict supervision and protection end when the patient returns to regular employment.

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RESULTS OF THYROIDECTOMY IN TOXIC GOITER*

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During the past few years there has been a most favorable change in the results from the operative treatment of toxic goiter. Among the contributing factors may be mentioned better anesthesia, more enlightened and more prolonged preoperative care and above all the use of iodine in the period preceding and immediately following operation. Iodine has influenced results in two ways: It renders the thyroid gland firmer and less vascular thus diminishing the chance of hemorrhage and making less likely the occurrence of postoperative tetany and recurrent laryngeal paralysis. It also obviates the menace of serious postoperative thyroid crises. Under these more favorable conditions it has been possible to abandon almost completely such palliative operations as polar ligation and lobectomy, while the mortality from subtotal thyroidectomy has been reduced and the chance of recurrence of toxic symptoms lessened. Recent reports^{1 2 3 4} of operative results are encouraging but as yet

are not of sufficient scope to indicate exactly the degree of safety which may be attainable or to determine the number of recurrences which may be expected.

At Barnes Hospital, the use of iodine in pre-operative treatment was commenced during the summer of 1924. During that year, also, a routine of general management was developed which has been applied to practically all patients who have since come to the clinic. The details of this treatment have been reported in a previous paper.⁵ Operations performed during 1929 are obviously too recent to permit judgment of results. We have therefore taken for careful analysis the period from July, 1924, to December, 1928, as representative of the results which may be expected from thyroid surgery under present conditions.

During this period, 122 thyroidectomies were performed on patients with toxic goiter. Sixty-seven patients were completely examined postoperatively on repeated visits to the Out-Patient Department; 45, who did not live in the immediate vicinity of St. Louis, or who were under the care of their own physicians, answered a comprehensive questionnaire. Only 10 patients could not be followed.

For purposes of analysis, the cases are divided into groups of exophthalmic goiter and toxic adenoma. Although this division is based on a pathological report of the tissue, the disparity, which was frequently noted between the clinical diagnosis of the types of goiter and the pathological findings, serves to

Table I. *Exophthalmic Goiter. 76 cases*

Age at operation:	Youngest, 15 years; oldest, 58 years; average, 36.5 years
Sex distribution:	Males, 17 cases; females, 59 cases; ratio, 1:3.5
Duration of thyroid symptoms:	Averages 28 months
Cardiac involvement:	Noted in 50 per cent of cases
Type of cardiac complication:	Auricular fibrillation, 7 cases Auricular flutter, 1 case Enlargement, 24 cases Other irregularities and lesions, 6 cases
Average basal metabolism:	On admission +49% Preoperative +22% Discharge +10%
Operative deaths:	1 case. Tracheal edema, two days postoperative, bronchopneumonia.
Tetany:	3 patients showed early tetany, easily controlled.
Postoperative hypothyroidism:	4 cases, fully stabilized on thyroid therapy.
Thyroid crises:	2 cases.
Recurrences:	7 cases (four had only lobectomies)

Toxic Adenoma. 46 cases

Age at operation:	Youngest, 23 years; oldest, 65 years; average, 44 years
Sex distribution:	Males, 6 cases; females, 40 cases; ratio, 1:6.6
Duration of thyroid symptoms:	Averages, 56 months
Cardiac involvement:	Noted in 70 per cent of cases
Type of cardiac complication:	Auricular fibrillation 7 cases Enlargement 21 cases Other irregularities or lesions 4 cases
Average basal metabolism:	On admission +43% Preoperative +24% Discharge +13%
Operative deaths:	1 case. Hemorrhage from inferior thyroid artery
Tetany:	Tracheal edema few hours postoperative One patient developed chronic tetany. Still requires 20 units para-thor-mone daily
Postoperative hypothyroidism:	4 cases, fully stabilized on thyroid therapy
Thyroid crises:	None
Recurrences:	1 case. Incomplete lobectomy

*Presented before the Washington University Medical Society, May, 1929.

emphasize again the existence of intermediate types of toxic glands. Serial sections were not made routinely on the glands submitted. It has been repeatedly noted, however, that the histological picture of the same gland may vary with the section examined, showing in one portion the diffuse hyperplasia characteristic of exophthalmic goiter and in another quite typical adenomatous formation. In the final analysis, therefore, our two major groups of toxic goiter must be considered as serviceable but not arbitrary clinical classifications.

DISCUSSION

The greater age of the toxic adenoma group is in conformity with generally accepted statistics. The ratio of female to male patients (approximately four to one) in both groups is also in agreement with the reports of other clinics.¹ The duration of symptoms was, as would be expected, longer in the toxic adenoma group, the majority of these patients giving a history of thyroid enlargement of many years standing without toxic symptoms.

Cardiac damage was considered present when there was enlargement of the heart demonstrable on physical or X-ray examination, or when there were pathological electrocardiographic changes or evidence of clinical cardiac incompetence. Involvement of the heart, based on the above criteria, was found in 50 per cent of the exophthalmic goiter patients and in 70 per cent of the toxic adenoma group at the first examination after admission to the hospital. The greater incidence of heart lesions in the latter group is to be expected since it is composed of older individuals in whom thyrotoxicosis has usually been of longer standing.

The types of cardiac complications are analyzed in Table 1. In the majority of cases the end result was hypertrophy and dilatation. Auricular fibrillation was the most common type of irregularity occurring in twenty per cent of all the cases where there was demonstrable heart involvement. One remarkable case of auricular flutter is worthy of special comment. The electrocardiogram showed an auricular rate of 380, with an auriculoventricular block present and a ventricular rate of only 38. This complete heart block persisted until operation, when manipulation of the thyroid gland temporarily relieved the auriculoventricular block and caused the pulse to increase suddenly to 120 per minute. The extremely slow ventricular rate recurred, however, when the patient was returned to the ward and was present at the time of her discharge from the hospital. It is of practical importance to remark that in the entire group of patients who showed cardiac irregularities a normal mechanism was never permanently re-

stored if the arrhythmia had been present over six months preceding the operation. Post-operative admissions of patients with cardiac complaints were limited almost entirely to cases of long standing heart damage. Sparing of the myocardium is a convincing argument in favor of the early operation of thyrotoxic patients who have been properly prepared.

Iodine was used routinely in preparing patients for operation. An average dosage of Lugol's solution was ten minims three times daily for two to three weeks, during which time the patient was at complete bed rest. Sedatives were given when indicated and a high caloric diet was maintained. In view of the conflicting reports from other clinics on the comparative benefits to be derived from iodine therapy in toxic adenoma and exophthalmic goiter, it is interesting to note that in our series the improvement, as reflected in the basal metabolic rate, was as striking in one group as in the other. It will be seen in Fig. 1 that on the same preoperative routine the average basal metabolic rate in patients

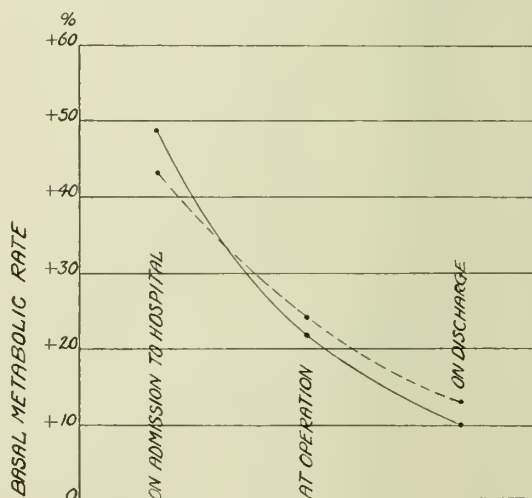


Figure 1. Comparative change noted in the basal metabolic rate in exophthalmic goiter and toxic adenoma under the same management and equal dosage of iodine. (Solid line indicates exophthalmic goiter; broken line indicates toxic adenoma.)

with exophthalmic goiter was reduced from plus 49 per cent to plus 22 per cent; in toxic adenoma cases the reduction was from plus 43 per cent to plus 24 per cent.

The operation of choice, a subtotal thyroidectomy, was performed as the first operation in almost all the cases under consideration. It was often difficult to estimate the amount of tissue removed by reading the operative notes, but the general surgical policy was to remove as much of the thyroid gland as was consistent with the integrity of the parathyroids and the recurrent laryngeal nerves. In many cases, and particularly in the more recent operations, this left little more

than the tissue adherent to the posterior capsula.

In a few cases ligation of the superior thyroid arteries was performed either in another hospital or early during the period of investigation in our own institution. No case was found where permanent improvement followed such a procedure. Even immediate benefit was the exception rather than the rule. A sharp rise in the basal metabolism after ligation and an increase in the symptoms of nervousness and tachycardia were frequently noted. All the cases that had such ligations were forced to return for a subsequent subtotal thyroidectomy.

There were two operative deaths in the entire series of 122 thyroidectomies. One case of toxic adenoma developed a hemorrhage from the inferior thyroid artery and a resulting tracheal edema. In spite of an emergency tracheotomy and transfusion the patient succumbed within a few hours following operation. One case of exophthalmic goiter showed signs of tracheal edema two days following operation; the patient had phonated perfectly immediately after thyroidectomy. Heroic measures, including a tracheotomy, failed to save her. Necropsy showed a bronchopneumonia.

Excluding the two fatal cases, there were only two instances where a postoperative tracheotomy became imperative because of stridor (1.6 per cent). In one of these patients the injury to the recurrent laryngeal nerve was slight and the recovery of voice function was complete. In the other case, a highly neurotic Jewess who was weaned away from her tracheotomy tube with great difficulty, hoarseness remained to mock an otherwise satisfactory operative result.

Only one postoperative transfusion (beside the two already described) was necessary to combat hemorrhage or shock.

There were three cases of early postoperative tetany (2.5 per cent), all occurring in patients with exophthalmic goiter and easily controlled with para-thar-mone therapy and increased calcium intake. Recovery was complete in each instance.

There were two moderately severe postoperative thyroid crises (1.6 per cent) characterized by marked tachycardia, with transient arrhythmia, hyperthermia and extreme apprehension. One of these patients is also included in the group of early postoperative tetany mentioned in the preceding paragraph. The other patient, it was discovered, had received an inadequate preoperative amount of iodine. The alarming symptoms of the thyroid

crises were promptly alleviated by the orthodox treatment of intravenous sodium iodide and sedatives.

One patient developed a chronic tetany several months after his toxic adenoma was removed. At present, two years after operation, he still requires a daily maintenance of twenty units of para-thar-mone to prevent the painful attacks that occur with hypocalcemia. In spite of this unfortunate result, the patient has preserved a courageous outlook on life. Incapacitated for his former occupation as a "red-cap" at the Union Station, he is now a cheerful and affluent "bookmaker." He remains in comparatively good health on parathar-mone substitution therapy, and his chief concern is that his confreres may detect him in the act of taking a hypodermic and accuse him of narcotic addiction.

Of the entire series of 112 cases who have been followed from six months to a year after operation, eight developed definite postoperative hypothyroidism (7.1 per cent) characterized by low basal metabolic rate and one or many of the typical features, i. e., excessive gain of weight, dry skin, increased susceptibility to cold, constipation, edema of feet, loss of hair, or lethargy. All have been readily stabilized on an average dosage of two grains of desiccated thyroid daily. Aside from the inconvenience of indefinite continuation of this medication, these individuals enjoy relatively good health. They have returned to their former occupations. Certainly their condition, although it does not represent the ideal operative result, is to be preferred to the status of patients who have had less complete thyroidectomies and who constantly face the liability of recurrence.

Whenever a patient several months postoperative continued to manifest the classical signs of hyperthyroidism, or when the symptoms returned after a period of quiescence, a recurrence was considered to have taken place. An analysis of the eight recurrences discovered in this follow-up study shows that seven occurred in patients with exophthalmic goiter and only one in a case of toxic adenoma. The initial operation performed in the latter as well as in four of the seven recurrences in the exophthalmic goiter group, consisted of simple lobectomy.

Only three cases of recurrence were found in the entire operative series of patients who were given the benefit of a subtotal thyroidectomy (2.7 per cent of the 112 patients who were followed). Two of the three cases of exophthalmic goiter that suffered a recurrence after subtotal thyroidectomy were operated early in the series and it is possible that

an insufficient amount of tissue was removed. Deep X-ray therapy over the thyroid gland controlled the symptoms of recurrent thyrotoxicosis in both of these women. The remaining case was treated under the best conditions. The patient gained weight rapidly and was entirely well for nine months after operation. Symptoms of hyperthyroidism then returned and thirteen months after operation she was sent back into the hospital for rest and X-ray therapy. In connection with the relation existing between infection and hyperthyroidism (to which attention has already been called in the previous article⁵) it is interesting to note that this patient suffered from repeated attacks of rather severe tonsillitis. Deep X-ray exposure and iodine caused a complete subsidence of symptoms but the patient still showed a constant tendency toward recurrence. Six months after the first series of X-ray treatments, the patient was found to have a normal basal rate but still manifested mild symptoms of thyrotoxicosis. When last seen in the Out-Patient Department she was in good health.

The question of the use of iodine after operation deserves comment. Although every patient on discharge from the hospital was instructed to continue iodine therapy over a period of weeks or months, a large number of them neglected to follow the advice. Their failure to take the prescribed Lugol's solution apparently neither delayed their recovery nor predisposed them to recurrence. Conversely, it may be stated that the patients who took iodine for several months after operation showed no increased liability to recurrence.

Four patients died within one year after thyroidectomy. Three were patients with advanced heart disease at the time of operation and died of chronic cardiac incompetence. Autopsy on the fourth revealed carcinoma of the ovaries.

The change in eye signs was difficult to evaluate in the absence of careful measurements. When the exophthalmos was slight, or of short duration, there was frequently a gratifying reduction of the prominence of the eyeballs following operation. The gain in weight, which averaged 25 pounds one year after operation, may have been a factor in the apparent subsidence of exophthalmos. Two instances in which exophthalmos increased following operation have been brought to our attention by their physicians.

SUMMARY

It was formerly thought that a patient suffering from severe hyperthyroidism presented

a serious operative risk and was probably sentenced to continue invalidism or recurrence of symptoms even if the ordeal of operation were successfully passed. This follow-up study demonstrates the vastly improved outlook for this class of patients at the present time. Out of a series of 122 operations for toxic goiter performed in the last four years at Barnes Hospital, we have checked up rather closely on the condition of 112 during a period of months to years following operation. The operative results,—triumphs, accidents and failures,—have been candidly reported and analyzed. While it is difficult to estimate the degree of rehabilitation in any large group of postoperative patients who represent all strata of society from university professors to day laborers, it can be conservatively stated that over eighty per cent of the patients have returned to their former occupations, restored to their normal useful function. With the exception of the relatively few patients who suffered advanced cardiac damage from long existing hyperthyroidism, the vast majority of postoperative cases that report for periodic examinations present only the minor symptoms of any group of adults undergoing an insurance test.

The highly satisfactory results obtained in this series of thyroidectomies are, first of all, a tribute to good surgery, without which no preparation or after-care can be adequate. It is believed, however, that much credit should be given to the thoroughness of preparation before operation. Complete cooperation between physician and surgeon is indispensable in the care of patients with toxic goiter. In this series no thyroidectomy was performed until the patient had been thoroughly studied and considered by the physician safely prepared for operation.

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COLONIC FOREIGN BODIES

Curtice Rosser, Dallas, Texas, (*Journal A. M. A.*, Aug. 3, 1929), reports on four cases in which he removed colonic foreign bodies. He found that a high caudal anesthesia produces a profound relaxation of the muscles innervated by the lower thoracic as well as the lumbosacral nerves and will obviate laparotomy or splitting of both anal sphincters unless the object has perforated the wall of the intestine.

THE JOURNAL

OF THE

Missouri State Medical Association

SEPTEMBER, 1929

EDITORIALS

UNDULANT FEVER

A disease formerly thought to be indigenous to the Mediterranean countries and to the Island of Malta has appeared in Continental Europe and in the United States. Undulant fever (Malta fever) has been found in almost every state in the Union and in some states presents a very serious health problem. In the state of Iowa there have occurred over two hundred cases and the disease is apparently on the increase. Our middle western states show the greatest incidence.

The former finding that the etiological factor, the *Brucella melitensis*, was harbored only by infected goats, has been shown and proven to be erroneous. The same organism (probably in a slightly modified strain) is found in cattle and hogs and is the cause of contagious abortion in these animals. This relationship was discovered by Dr. Alice Evans, of the Hygienic Laboratory at Washington, D. C., who herself contracted the disease while working in the laboratory.

Apparently the chief origin of infection, in this country at least, has been in drinking raw milk from herds infected with contagious abortion. The principal problem is one of prevention, which is either the pasteurization or boiling of all milk.

THE MENTAL DISEASE PROBLEM

The largest problem in public health seems to be almost the last to attract the attention of the great philanthropists. Vast sums have been poured out to control yellow fever, malaria, hookworm, and tuberculosis. But mental disease, which fills as many hospital beds as all other diseases, medical and surgical, put together, has received relatively scant attention.

Quite fifty per cent of the hospital beds in the United States are filled with committed cases, those legally "insane." We have no statistical information on the number in private homes and hospitals of mentally afflicted and handicapped persons, but the number must be added to the above.

The evolution of the care and treatment of the insane from the period when no discrimination at all was made between them and criminals, to the present time when the law of Missouri sends the sheriff to seize a mentally ill woman and conduct her, perhaps an overnight journey, to a state hospital, has been painfully slow. We still mix a very large legal phase into our thinking about mental disease.

Is it too much to hope that some of the vast wealth of this country shall be applied to the intensive study of mental disease, which has brought such large returns in the reduction of other human afflictions?

The public burden in taxes may eventually arouse the electorate to demand that a portion of the public funds be applied to research and prevention in mental disease, and it may happen that some of the great foundations will take for its task this most difficult but most important effort to promote human welfare.

THE SEROLOGIC CONFERENCE OF THE LEAGUE OF NATIONS*

At the second laboratory conference on serodiagnosis of syphilis, held at Copenhagen, May 21 to June 4, 1928, the leading serologists conducted a comparative study of various laboratory methods for the serologic diagnosis of syphilis. Sixteen different countries were represented with each representative executing the special flocculation test¹ or the modification of the Bordet-Wassermann reaction in use in the countries represented.² The Kahn reaction was executed by Dr. R. L. Kahn, the only representative from the United States, and by Dr. Boas, of Denmark.

Out of a total of 944 sera tested by these various methods, 502 were from known cases of syphilis, 7 were from doubtful cases and 435 were from cases diagnosed as being non-syphilitic. The latter group comprised patients suffering from tuberculosis, cancer, scarlet fever, gonorrhea, pregnancy, etc.

The largest number of positive reactions was secured by Müller with the Müller clotting test. This test gave 317 positive reactions and 45 doubtful positive reactions from a total of 502 syphilitic cases. In the group of non-syphilitic cases this test gave one positive reaction and 10 doubtful positive reactions. The Kahn test as executed by Kahn had the next largest number of positive reactions in the syphilitic group giving 305 positive reactions and 33 doubtful positive reactions. In the group of non-syphilitic cases the Kahn test

* Report of the Second Laboratory Conference on the Serodiagnosis of Syphilis, Series of League of Nations Publications, Official No. C.H.726, Geneva, 1928.

had no positive reactions and 5 doubtful positive reactions. The Kahn test as conducted by Boas ranks third in sensitiveness by having 294 positive reactions, but it also gave 3 false positive reactions.

Jacobsthal secured 265 positive reactions in the syphilitic group and 29 false positive reactions and 36 false doubtful positives in the non-syphilitic group, using the German modification of the Bordet-Wassermann reaction. Otto-Blumenthal, also using the German modification of the Bordet-Wassermann reaction, secured 260 positives in the syphilitic group and 24 false positives with 40 false doubtful positives in the non-syphilitic group. The Meinicke test ranked ninth in giving the largest number of positives by securing 246 positive reactions in the syphilitic group but it also gave 9 false positive reactions and 13 false doubtful positives in the non-syphilitic group.

It is of interest to compare the large number of false positive reactions secured by the Bordet-Wassermann tests in comparison to the flocculation tests.³ The 7 different Bordet-Wassermann reactions gave a total of 98 false positive reactions and 164 false doubtful positive reactions. In contrast to these tests the 9 flocculation tests gave 23 false positive reactions and 143 false doubtful positive reactions. These results speak well for the various flocculation tests.

In comparing the Kahn reaction as executed by Dr. Kahn with the Wassermann-Bordet tests and with the other flocculation tests the Kahn test is outstanding in that it gave no false positive reactions and ranked second in sensitivity. The Kahn test proved to be superior to the Müller clotting reaction because the latter test gave a definite false positive reaction in a non-syphilitic case and a fairly large number of doubtful false positives,—ten such reactions in comparison to five by the Kahn test. An outstanding advantage that the Kahn reaction possesses in comparison to the Müller reaction is that the Kahn test requires no incubation period in its manipulation. It is a spontaneous test and can be completed within 45 minutes while the Müller test requires 24 hours' incubation before it can be read. Another serious disadvantage to the Müller test is that the antigen can be secured only from a distributing center in Berlin because of difficulties in its preparation, while Kahn antigen can be prepared and standardized by any competent serologist.

As a result of the work done at the conference a number of recommendations were adopted. Some of the important ones follow:

1. Expressed the opinion that the best of

the flocculation tests may be regarded as equal in value to the tests of those which depend on fixation of complement (Bordet-Wassermann).

2. Emphasized the fact that these flocculation methods, no less than the complement-fixation test, despite their apparent simplicity, are extremely sensitive to the slight difference in experimental conditions and subject to as many sources of error in connection with the execution of the test and with the reading and interpretation of the results. They must therefore be placed only in the hands of specially trained serologists.

3. In order to secure the most reliable information to the clinician, recommends that at least two different serodiagnostic methods should be used.

1. The following flocculation tests were used: Kahn reaction; Meinicke's turbidity test; Muller's clotting test; Murata reaction; Sachs-Georgi reaction; Sigma reaction modified, and Vernes syphilimetric reaction.

2. The following modifications of the Bordet-Wassermann test were used: Modification described by Medical Research Council used by Dr. Wyler; modification of D. deBlasi used by Prof. deBlasi; modification by Debais used by Prof. Debais; modification by Jacobsthal used by Dr. Jacobsthal; original method used by Dr. Blumenthal; original method used by Dr. Pavlovitch and modification by McIntosh and Fildes used by Dr. Sierakowsky.

3. The term "flocculation" is used by the conference to include all tests when the reaction depends upon flocculation, increase of turbidity, precipitation or clotting.

MAKING THE MECHANICAL REFRIGERATOR SAFE

One gratifying prospect appears in the wave of sickness and deaths produced by accidents in the use of toxic gases in industry and the home. That is the prompt action of the American Medical Association and the high order of cooperation promised by manufacturers of mechanical refrigerators with state and local health authorities, which augur prompt clearing up of the whole situation.

It is only a few weeks since attention was first generally directed to the hazards of some gases used in refrigeration, but a committee of the American Medical Association already is at work and is expected to report at an early date. Men who had given special attention to the subject were appointed by the Board of Trustees, at the request of the House of Delegates, at the annual meeting in Portland, and instructed to report on the dangers involved in the use of poisonous gases in industry and the home and on the research required to establish information not now available. The committee includes Dr. H. Gideon Wells, Professor of Pathology in the University of Chicago; Dr. R. L. Thompson, of the United States Public Health Service; Dr. Carey P. McCord, associate professor of preventive medicine in the

University of Cincinnati College of Medicine; Yandell Henderson, Ph.D., professor of physiology in Yale University School of Medicine, and Paul N. Leech, Ph.D., director of the chemical laboratory of the American Medical Association.

Along similar lines, Secretary of Commerce Lamont has initiated a conference of the Public Health Service, Bureau of Mines and Bureau of Standards, on safeguards against toxic gases used in mechanical refrigerators. The Bureau of Mines has studied the use of some of the gases and, with the Public Health Service, reported that chemical "warning agents" should be added to methyl bromide and methyl chloride, and possibly to ethyl bromide and ethyl chloride. Similarly, a special coroner's jury inquiring into deaths caused by methyl chloride in Chicago has recommended discontinuance of its use in refrigerators as soon as possible, with temporary use of warning gases until a less hazardous gas can be substituted for it, and a definite warning by the manufacturers to users of refrigerators operating with methyl chloride.

This, obviously, is a most delicate situation. Anything but utter tact and fairness in handling it would be ruinous to manufacturers who had put out their product in entire good faith, and anything but decisiveness would lay the public liable to intolerable hazards. So far, it has been met in a most commendable manner. In St. Louis, for example, the Health Department has been most solicitous of the safety of the public and the best interests of the manufacturers, and the manufacturers, on their part, have been most prompt in taking the remedial steps advised by the department. These methods, with the additional information soon to be forthcoming from the American Medical Association and other agencies engaged in studies along related lines, seem certain within a brief period to eliminate the material dangers and with them the public fear of mechanical refrigerators, an object of immense benefit to the manufacturers themselves.

PREMEDICAL REQUIREMENT FOUR YEARS' COLLEGE WORK

Washington University School of Medicine, which has done much to make St. Louis an international medical center, announced in this year's catalogue that, beginning in 1931, it will require a full four years of college preparation of every applicant for matriculation.

Much as the world needs more physicians, explained Dr. McKim Marriott, dean of the medical school, its greater need is for better

physicians. A considerable proportion of the applicants now have four years of college work, and many reputable medical schools are open to those who have less. It is proper that the noted Missouri institution, which offers as fine facilities for medical training as any in this country, should demand the finest sort of students. Anything less would be wasteful and short of its function.

How fine its facilities are has been recognized in many ways but in none more decisively than in the number of applicants. With accommodations for only eighty-two freshmen this fall the school was swamped with five hundred and thirty-five applications by the first of June this year. The process of selecting so few from so many makes the four-year prerequisite virtually effective now. An exception will be made in favor of the more desirable applicants with less than four years' preparation even when the requirement is formally in effect so that no good man is likely to be deprived of his opportunity for medical training while, on the other hand, the profession will be deprived of no promising material.

With 12 or 18 months' internship the physician who has four years of college work will invest nine or nine and a half years in preparation before he is ready to enter private practice. That is a large investment in money and years of life, an investment which the country doctor of tradition would find it difficult to make. Good roads, the automobile and the grouping of medical facilities in small towns, however, have been cited as insuring that the investment is safe for the physician and of benefit to the rural population. Adequate medical and hospital service is within an hour's reach of almost any farmer and the physician who settles at these rural centers seems assured of both financial and scientific returns on his investment.

The medical school will be the first of Washington University's professional schools to be placed on a graduate basis, the objective announced by Chancellor Throop when he took office last winter. Since the university is not designed for mass production of "college graduates," the Chancellor aspires to devote it to turning out comparatively small numbers of men and women who will be equipped with an outstanding academic education, and of professional people trained to lead in the world's work. It is an admirable aim, and we hope with the Chancellor that the other university departments will steadily rise to the plane of the medical school, which is internationally conceded to have arrived.

KANSAS CITY ANNUAL FALL CLINICAL CONFERENCE

In this issue* there appears a condensed program of the Kansas City Southwest Clinical Society's seventh annual clinical conference to be held at Kansas City, Mo., October 7 to 11 inclusive. Seldom has there been such an array of distinguished guests on a program as is noted in this meeting and the seventh conference of this organization is expected to be the biggest and best it has ever had.

The Clinical Society was organized in 1922, as set forth in its Constitution, (1) "to promote, encourage and develop the educational advantages of the clinical material of Kansas City that they may be available throughout the year to visiting physicians," and (2) "to hold an annual clinical conference which will demonstrate and emphasize the progress of medicine throughout the world for the benefit of physicians and surgeons of the Southwest." During the past seven years the Kansas City Southwest Clinical Society has enjoyed a most successful and enviable career and it can conscientiously boast of its great progress and growth.

A new feature of the meeting this year will be the postgraduate courses to be given daily. Special class rooms are being prepared and the instructors will be drawn from the distinguished guests and membership of the Society. Every visitor can receive a complete postgraduate training in his particular specialty.

Two special sessions should be noted, namely, that of the joint meeting with the Kansas City Eye, Ear, Nose and Throat Society on Tuesday evening with Dr. Finnoff, of Denver, Dr. Jackson and Dr. McCrae, of Philadelphia, as the principal speakers; and that of Thursday evening, a joint meeting with the American Committee for the Control of Rheumatism. The subject of arthritis which is to be discussed by the Committee at this meeting should be most interesting and instructive.

The usual clinics at the Allied Hospitals will be held each morning and the ever popular Round Table Luncheons with short addresses by distinguished guests will be held each noon.

Plenty of entertainment has been provided, the Smoker of Tuesday evening, the Alumni Dinners on Wednesday evening, the Golf Dinner on Friday evening. In fact, nothing has been neglected to make the entire meeting the most profitable and instructive of any meeting held in the Southwest.

* See advertising page XVII.

MISSOURI TUBERCULOSIS ASSOCIATION

The Missouri Tuberculosis Association will have its annual meeting at Jefferson City on September 26 and 27. The program for the clinical section on September 27 will be exceptionally attractive to all physicians and a good attendance is anticipated.

Endeavor is made to arrange subjects dealing with the tuberculosis problems from a practical point of view. Some of the topics to be discussed are, Clinical Tuberculosis in the Adult and Its Early Diagnosis; The Current Treatment of Pulmonary Tuberculosis; Masked Juvenile Tuberculosis; Bone and Joint Tuberculosis; The Surgical Treatment of Pulmonary Tuberculosis.

The remaining subjects on the program will be of equal interest. The speakers are men who have given much time and study to further our knowledge of tuberculosis and are amply qualified to present the newer concept of these problems. Dr. Evarts A. Graham, Professor of Surgery, Washington University, has been requested to discuss the surgical treatment of pulmonary tuberculosis; Dr. J. Albert Key, St. Louis Shriners' Hospital for Crippled Children, has agreed to discuss bone and joint tuberculosis; Dr. T. C. Hempelmann, St. Louis Children's Hospital, has been invited to discuss masked juvenile tuberculosis; Dr. E. E. Glenn, State Sanatorium, Dr. George Kettlekamp, Koch Hospital, and others especially interested in tuberculosis will appear on the program; Dr. Howard H. Bell, Tuberculosis Controller of St. Louis, will discuss the subject of tuberculosis control in the nonclinical session on the morning of the 27th.

The clinical sessions will be especially instructive and useful to the general practitioner of medicine, for tuberculosis on account of its prevalence as a disease is a subject in which every physician must of necessity have much interest.

The Missouri Tuberculosis Association has for some time had an annual meeting which bore semblance to a business session. The Executive Secretary, Mr. J. W. Becker, has for years desired to include a clinical section at these meetings, which was undertaken for the first time last year at Kansas City. This experiment was so very successful that the clinical section at the Jefferson City meeting will be one of the most important features of the entire program.

HORTON TRIES EXTORTION

"Diploma mill" scandals of several years ago have turned up in the courts again both in Illi-

nois and Missouri, where the latest swath of the aftermath was the arrest of Dr. Ray B. Horton in Kansas City August 3 on charges of extortion. Dr. Horton, whose license to practice in Missouri was revoked for earlier diploma mill activities, was trapped in his office, opened recently, by investigators for the county prosecutor just after Dr. C. A. Beard, Kansas City, Mo., gave him \$1000 in marked bills.

Dr. Beard had complained to Prosecutor James R. Page that an attempt was being made to blackmail him. He is a graduate of the Kansas City College of Medicine and Surgery, later involved in the "diploma mill," and told Page that Dr. Horton had offered for \$1000 to keep his name from a list of the school's graduates which Horton said was to be published in a "diploma mill" news article.

Four investigators followed Dr. Beard to Horton's office; one remained on Grand avenue below the office windows. Dr. Beard entered alone. He reported that he handed Dr. Horton the marked money in an envelope. Two investigators burst in. Dr. Horton fought them off long enough to toss the envelope out a window, but it was retrieved by the investigator who had remained below. It required the combined efforts of three investigators to subdue Dr. Horton.

In consequence of action taken three days later by Dr. James Stewart, Secretary of the Missouri State Board of Health, Dr. Horton may lose his license to practice medicine in the State of Kansas. Dr. Stewart formally notified Dr. A. S. Ross, Secretary of the Kansas State Board of Medical Registration and Examination, that Dr. Horton's license to practice medicine in Missouri was revoked in May, 1927. He pointed out that the Kansas license had been granted on a reciprocity basis to Dr. Horton as the holder of a Missouri license.

New indictments returned August 1 in Chicago where several men in various parts of the country have been indicted as members of a license-peddling ring, named W. H. H. Miller, former director of the Illinois Department of Education and Registration, and L. Mitchell Blaine, a former employe of the department. Miller was deposed a few years ago after conviction of misdealing in licenses and examination papers.

Investigators for the state's attorney have declared that more than 1000 fake medical and dental licenses had been sold by this organization for about \$2,000 each and that diplomas of highly reputable medical schools had brought prices even higher. The ring went to the extent of obtaining photostat copies of original

licenses and diplomas and making plates for the printing of forgeries.

Chief investigator Patrick Roche arrested a Springfield printer who he said admitted that forgeries were made of diplomas of Rush Medical College, Northwestern University Medical School and the University of Wisconsin Medical School as well as intern certificates from Cook County Hospital and the licenses and seal of the State of Illinois. Information on the extensive machinery for making forgeries was obtained by Roche from one of the seven men indicted earlier in the summer, Albert Carl Barron, who stated that he and the printer had thrown counterfeit plates into the drainage canal and Lake Michigan. The plates for forging the seals of Northwestern University and the University of Chicago Medical Schools were recovered from Lake Michigan by a professional diver retained by the state's attorney.

A BAS THE CUSTARD PIE

Custard pies and cream puffs have been banned for the summer in St. Louis by Health Commissioner Starkloff, to the displeasure of children with a sweet tooth and the satisfaction of their parents and physicians—not to mention the bakers.

The Master Bakers' Association itself sought the order against sale of custard or cream confections, which Dr. Starkloff issued August 15 after conferring with a committee of the association. It is to be effective until October 1. Several deaths in Chicago have followed the eating of custard or cream confections this summer. The St. Louis Health Department's bacteriologist found that custard was a fruitful medium for "wild" cultures of any "bug" that might be drifting about in the air. Dr. Starkloff remarked that one batch of bakery foods, bought over the counter, had been found to be well colonized with paratyphoid.

That is sufficient explanation of the fact that well-informed bakers could not sell creams and custards with complete peace of mind. The beautiful thing about it, to us, is that they chose to stop it explicitly and completely rather than continue to take a chance. In our experience, bodies of laymen are not always so ready to act in situations of like possibilities. It is easier for a commercial group to consider the commercial opportunities than to regard the potential danger to public health. In that light, the Master Bakers, having faced the facts and acted accordingly, have our profoundest compliments.

But there is no hope for the sweet tooth, so

far as custard and cream confections are concerned, until October. The Health Commissioner not merely banned their sale,—he has warned against their preparation in the home. Mothers have the task of convincing their children that 50 or 60 years of life justifies dinners without custard pie,—a task that may not always be easy.

But, who hasn't seen the time—and the pies—when he would be almost disposed to take the chance?

NEWS NOTES

The Twelfth Annual Convention of The American Dietetic Association will be held in the Statler Hotel, Detroit, October 6-11, 1929.

The American Public Health Association will hold its next annual meeting at Minneapolis, September 30 to October 5. A number of state and national health organizations will hold their sessions during the same period. Elaborate plans have been completed by the local committee on arrangements for the entertainment of those who attend the meeting.

The following Missouri physicians were elected officers of Sections at the Portland session of the American Medical Association, July 8-12: Dr. Thomas G. Orr, Kansas City, Chairman of the Section on Surgery, General and Abdominal; Dr. C. B. Francisco, Kansas City, Chairman of the Section on Orthopedic Surgery; Dr. John Green, St. Louis, member of the American Board for Ophthalmologic Examinations, elected from the Section on Ophthalmology, for three years; Dr. C. E. Burford, St. Louis, alternate delegate for the Section of Urology.

The Inter-State Post-Graduate Association of North America will hold its next meeting at Detroit, October 21-25. Among the foreign guests who have been invited to attend the sessions are the following: Dr. J. M. Lémée, Otolaryngologist, Paris; Dr. Thomas K. Monro, Regius Professor of Medicine, Medical Department University of Glasgow; Sir Frank Colyer, Dental Surgeon, London; Professor E. F. Müller, Medical Department of the University of Hamburg; Dr. T. de Martel, Surgeon, Paris; Mr. David P. D. Wilkie, F. R. C. S., Professor of Surgery, Medical Department University of Edinburgh; Dr. Ferdinand Sauerbruch, Professor of Surgery, University of Berlin.

Dr. Claude J. Hunt, Kansas City, sailed August 10, on the S. S. Olympic for a two months' visit to the surgical clinics of Europe, particularly the goiter centers of Switzerland.

Dr. Paul J. Zentay, secretary of the St. Louis Pure Milk Commission, reported on the certification of milk in St. Louis at the June meeting of the American Association of Medical Milk Commissioners in Montreal, where he was a delegate.

Dr. A. W. Westrup, Webster Groves, President of the St. Louis County Medical Society, has been appointed by the St. Louis County Court as superintendent of the St. Louis County Hospital on which construction is to begin this month. He will take office immediately to give the benefit of his advice in carrying out the design of the million dollar structure which is to stand on North and South Road at Clayton. The hospital is to be completed in fifteen months. Dr. Westrup has been practicing medicine in Clayton and Webster Groves since 1910.

The American Board of Otolaryngology held an examination in Portland, Oregon, July 8, during the meeting of the American Medical Association. Thirty-seven applicants for the certificate took the examination; eleven per cent failed. The next examination will be given on Monday, October 21, in Philadelphia, preceding the opening of the meeting of the American Academy of Ophthalmology and Otolaryngology in Atlantic City. Prospective candidates for certificates should address the secretary, Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Nebraska, for proper application blanks.

Dr. Joseph W. Charles, St. Louis, sailed on the S. S. Rotterdam, August 24, to attend the meeting of the International Ophthalmological Congress at Amsterdam, September 10.

Dr. M. Haywood Post, St. Louis, will also attend the International Ophthalmological Congress at Amsterdam, sailing on the S. S. Leviathan, August 17. Dr. Post will be accompanied by Mrs. Post and they plan to spend about five weeks traveling in Europe after the Congress has adjourned.

This is the first time the Congress has met in Amsterdam since the close of the World War. St. Louis will be represented by three of its ophthalmologists at this world Congress, Dr. W. H. Luedde, being the other member (THE JOURNAL, August, 1929).

The centralized and classified list of donors maintained at the Central Registry of Nurses in St. Louis by the Blood Transfusion Committee of the Community Council has enabled the saving of many lives, according to the report of Dr. J. J. Singer, under whose chairmanship the committee was organized three years ago. Donors listed with the committee, numbering eighty-one at present, have given 275 transfusions in the three years and gave 49 in the first five months of this year. The regular fee to donors is \$25 for each transfusion, but many of them state willingness to forego the fee for poor patients, and 50 free transfusions have been given in the three years.

The United States Civil Service Commission announces open competitive examinations for associate medical officer and assistant medical officer. Applications for associate and assistant medical officer must be on file with the Commission at Washington, D. C., not later than December 30. The examinations are to fill vacancies in hospitals of the Public Health Service, the Indian Service, and in other establishments of the Federal classified service throughout the United States. Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience. On account of the needs of the service, papers will be rated as received and certification made as the needs of the service require. Full information may be obtained from the Civil Service Commission, Washington, D. C., or the secretary of the Civil Service Board of Examiners at the post-office in any city.

Simplification in design and improved controls have enabled the roentgenologist to constantly improve the quality of his work and obtain uniformly satisfactory results through the standardized technic which these improvements have made possible. Shortly after the CDX was placed on the market the Victor X-Ray engineering and designing organization under the leadership of Mr. J. B. Wantz started work on the development of a shock-proof type of X-ray unit for the use of the roentgenologists in the medical X-ray field. The development of the shock-proof X-ray unit is considered as probably the most important contribution to X-ray science since the advent of the Coolidge tube. The knowledge and experience gained during these many years are reflected in the design of this new apparatus. Nothing has been left undone to bring to a realization the finest piece of workmanship, in justice to the important role to which it is believed this apparatus will be assigned in future radiology.

The Missouri State Board of Optometry is investigating the reports that persons posing as optometrists have extorted considerable sums of money from rural Missourians by frightening them with false diagnoses. A specific case brought before the Board occurred at Patterson in Wayne County of a man introducing himself as a Chicago optometrist and another who pretended to be an eye specialist of some sort who told an elderly woman that her eyesight was in danger and obtained nearly \$75 from her. The Associated Press quoted an optometrist of Poplar Bluff as relating that two men posing as optometrists had forced an old couple in that vicinity to sign checks for \$100 and then cut the wires so that they could cash the checks before the victims could notify the bank.

Building plans for a \$16,000,000 New York Medical Center to cover most of three blocks along East River near the Rockefeller Institute for Medical Research have been filed by New York Hospital and Cornell University Medical College. The Center will be a group of thirteen buildings including the administrative offices of the medical college, a main hospital, a maternity hospital, a children's hospital, a psychoneuropathic hospital, five laboratory buildings, a medical library, nurses' home, service buildings, etc. The Center will be developed under the administration of a joint board including J. P. Morgan, Edward W. Sheldon, William Woodward, Frank L. Polk, Dr. Livingston Farrand, J. Du Pratt White and Dr. Walter L. Niles. Construction of the buildings will begin at once and it is estimated that it will take nearly three years to complete the Center.

The following articles have been accepted for New and Nonofficial Remedies:

Parke, Davis & Co.

Ampoules of Pitocin

Ampoules of Pitressin

Abbott Laboratories

Viosterol—Abbott

Benzol Products Co.

Neocinchophen—B. P. C.

Dick X-Ray Co.

I-X Barium Meal

Parke, Davis & Co.

Parke, Davis & Co.'s Viosterol

E. R. Squibb & Sons

Viosterol Squibb 100 D

Squibb's Viosterol Cod-Liver Oil 5 D

Squibb's Viosterol Cod-Liver Oil 5 D

Mint-Flavored

Terrell's Laboratories

Rabies Vaccine Phenolized, Terrell

Members of the Eugene Field Foundation made a personal inspection of the crippled children division of the University of Missouri Hospital at Columbia on July 28. Hosts were the twenty patients of the department, Dr. Guy L. Noyes, director of the hospital, and Dr. Kenneth Coonse, orthopedic surgeon. The inspection followed a luncheon of the foundation, which has aided in the maintenance of the state service for crippled children. Governor Caulfield, who spoke at the luncheon, remarked that despite anything the state might do to aid crippled children, and he wanted the state to do all it could, its efforts could never be successful without the aid of individual interests such as represented in the Foundation. The Eugene Field Foundation for the Relief of Crippled Children is incorporated under the laws of Missouri "for the purpose of receiving and properly disbursing funds for the care and scientific treatment of crippled children, also to receive and administer bequests for the same purpose," and addresses its appeal to all generous hearted men and women interested in this humanitarian work.

The United States Civil Service Commission has issued a statement to physicians directing their attention to the improper execution of medical certificates for civil service examinations.

New appointees are required to undergo a physical examination by a governmental medical officer before entering upon duty. The commission says that government medical officers frequently find physical disqualifications which must have existed when the preliminary medical certificate was executed by the private practitioner, although no mention of such physical defects is found in the practitioner's medical certificate. Such a situation presents a problem to the government, especially if the appointee has traveled a considerable distance to accept the appointment. In many cases the appointment must be canceled, with resulting loss of time and money to the disappointed applicant. The commission feels that these discrepancies are due to carelessness upon the part of the private practitioners or to a liberal attitude deliberately assumed in the mistaken belief that by ignoring or minimizing physical defects the applicant is assisted in obtaining employment. If all private practitioners will exercise due care when filling out the certificates they will render a service to the government and give the maximum service to the applicant.

Much more dependence may now be placed on antiseptics for human and animal use than was the case two years ago, or even a few months ago, according to officials of the Food, Drug and Insecticide Administration, United States Department of Agriculture, who are now completing an extensive investigational survey of these preparations sold in interstate drug trade. More than one thousand products described by their makers as antiseptics have been investigated with bacteriological tests made for most of them. Mouth washes, douche powders, suppositories, salves, liniments, dusting powders, tooth pastes, and soaps were included among those preparations. Few manufacturers had ever tested their antiseptics bacteriologically, the survey revealed. Some were under the impression that a chemical such as carbolic acid, for example, would be antiseptic no matter how weak a solution was used. Hundreds of so-called antiseptic preparations were found misbranded and bearing false claims.

The most an antiseptic can be depended upon to do is to destroy or inhibit the growth of bacteria on or very close to body surfaces. Many of these misbranded preparations were found to be offered as competent treatments for abscesses, la grippe, piles, sores of every description, sore throat, all forms of skin diseases, and diseases of the female reproduction tract. Some were even recommended to be taken internally for indigestion, stomach ulcers, cholera morbus, dysentery, and similar troubles.

Most of the mouth washes and douche powders were found to be modifications of the products described in the National Formulary as "Antiseptic Solution" and "Antiseptic Powder." The first of these is antiseptic only when used full strength; the second only when used as a dry dressing but not when dissolved in water for use in douching.

When manufacturers were advised to label their products truthfully to avoid violating the Federal food and drugs act, the majority willingly and promptly did so. They either revised their labels and directions or else changed their formulas to justify the claims made for the products. Makers of 45 so-called antiseptics removed their preparations from the market rather than to make any changes or to face legal action. In only 20 cases was it necessary for the administration to resort to legal action to secure compliance with the act.

In a preliminary survey of several well-

known antiseptics it was found that most of these preparations were either nonantiseptic or recommended in dilutions too weak to have any effect on bacteria. In fact, two of the so-called antiseptics examined at that time actually contained living bacteria.

The achievements made in the medical and allied professions during the past one hundred years through the aid of pure and applied science may be graphically shown at the Chicago World's Fair Centennial Celebration to be held in 1933. Leading authorities in these professions have been invited to serve on the National Research Council Science Advisory Committee to the Fair. They have been asked to advise ways and means as how to interpret in a concrete tangible form the advances made in their respective fields since applied science entered their fields up to the present day.

The medical men serving on the general committee include such well known men as: Prof. R. R. Bensley of the department of anatomy of the University of Chicago, on anatomy; Dean Arthur D. Black of the dental school of Northwestern University, dentistry; Dr. Frank Billings, of Chicago, medicine; Prof. Preston M. Hickey, of the Medical School of the University of Michigan, on roentgenology; Prof. Stanhope Bayne-Jones, of the School of Medicine and Dentistry of Rochester University, bacteriology; Prof. Fay-Cooper Cole, of the department of anthropology of the University of Chicago, anthropology; and Prof. Harvey A. Carr, of the department of psychology of the University of Chicago, psychology.

The National Research Council Science Advisory Committee was formed at the request of the trustees of the Chicago Exposition. As the most far-reaching scientific body in the United States, the trustees asked the National Research Council to prepare a philosophy for a world's fair which would be of an entirely different character than any exposition ever held before. This philosophy is to deal with the progress made by pure and applied science in industry since the beginning of the so-called industrial revolution up the present time. It is planned to make science one of the dominant notes of the Exposition.

As now planned the Chicago World's Fair Centennial Celebration, which will be known as "The Century of Progress," will probably offer the most unusual opportunity in the history of science for a physical demonstration of the progress of pure and applied science in the development of industry.



OBITUARY

THOMAS LEE HANEY, M.D.

Dr. Thomas L. Haney, Flat River, a graduate of Beaumont Hospital Medical College, 1901, died suddenly of heart disease at his home, Monday morning, July 22, 1929, three days before his fifty-ninth birthday. He had been ill the week before and was treated for a few days at Bonne Terre Hospital, returning to his home on Sunday, July 21. Dr. W. J. Bryan, Flat River, called on him at nine o'clock the following morning and Dr. Haney said he felt much improved, but the heart attack came soon after Dr. Bryan's departure, and Dr. Haney died at 9:45 a. m.

Dr. Haney was born at Avon, Missouri, the son of Jerry and Louvinia Smith Haney. He spent his youth at Avon and Libertyville, and on September 13, 1896, was united in marriage with Mary Ella Simpson. In 1901 he graduated from Beaumont Hospital Medical College, now comprised in St. Louis University School of Medicine, and began the practice of medicine in French Village. Three years later he removed to Flat River where his usefulness as a physician and as a citizen, and his circle of steadfast friends, have grown steadily for twenty-five years. His was a generous soul and a ready hand to aid his fellows. It is said that not once in the twenty-five years did he withhold his finest efforts on any call from the worthy poor, no matter at what hour or in what weather the call might come. For the last five years, Dr. Haney was physician to the National Lead Company at St. Francois, discharging those duties in addition to his extensive private practice. He was a member of the St. Francois County Medical Society and the Southeast Missouri Medical Society, also a member of the Masonic order and the Odd Fellows.

Dr. Haney found time, in all his professional activities, for participation in the civic affairs of his community. He was for many years an honored member and for some years a deacon of the Flat River Christian Church, where funeral services were held on the afternoon of July 25. Services were conducted by the pastor, Reverend E. B. Hensley, assisted by the former pastor, Reverend J. M. Bailey, of Farmington. Interment was in the Libertyville Cemetery. Surviving Dr. Haney are his widow and aged mother, two sons, Ralph and Earl Haney, of Detroit; five daughters, Mrs. R. C. O'Brien, Fredericktown; Mrs. Mercer Hicks, Flat River, and Lulu, Ruby and Ida May Haney, of Flat River; three brothers,

George Haney, Chico, California; Jerry Haney, Libertyville, and James Haney, Coffman; three sisters, Mrs. John Howlett, Albuquerque, New Mexico; Mrs. Elsa Gordon and Mrs. John Boyd, of Coffman. Two children died in infancy and a daughter, Stella, died at the age of twelve.

In the death of Dr. Haney Missouri loses a fine and outstanding representative of the medical profession. His charity practice approached that of a university clinic. His rugged, kindly face had become a symbol of hope for the poor folk of all the Lead Belt, and deeply as his loss is felt in his own community, it is regretted no less by classmates and fellow-members of the medical profession throughout the state.

WALTER FLOYD FRY, M.D.

Dr. Walter F. Fry, Johnston City, Tennessee, a graduate of Marion-Sims College of Medicine (now St. Louis University School of Medicine), 1901, died May 20, 1929, aged 54.

Dr. Fry, formerly of Frankford, Missouri, had been assistant surgeon at the Mountain Branch of the National Home for Disabled Volunteer Soldiers, Johnston City, since August 1, 1928. He was a native of Fort Wayne, Indiana. He attended the public schools and high school in St. Louis. After receiving his medical degree he practiced in St. Louis for sixteen years, then moved to Lincoln, Nebraska, where he remained until 1922. In 1923 he located at Piedmont, Missouri, and later practiced at Annapolis and Frankford, Missouri. He was a member of the Pike County Medical Society.

CHARLES FRANCIS MARTIN, M.D.

Dr. Charles F. Martin, Kansa City, a graduate of the College of Physicians and Surgeons, Kansas City, Kansas, 1874, died June 27, 1929, aged 55.

Dr. Martin was born in Chicago in 1874. He obtained his preliminary education at Kansas City, Kansas. Following graduation from medical school he started practice at Sargent, Nebraska, and in 1901 moved to Winchester, Kansas, where he remained for eight years. In 1909 he moved to Kansas City where he became prominent as an anesthetist. At one time he was anesthetist at Mercy Hospital, Kansas City, Missouri, and local surgeon for the Kansas City Southern Railroad. He was a member of the Jackson County Medical Society since 1919, a Fellow of the American Association, and member of the Associated Anesthetists of the United States and Canada.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.
Ralls County Medical Society, December 17, 1928.
Chariton County Medical Society, December 28, 1928.
Mercer County Medical Society, January 2, 1929.
Camden County Medical Society, January 11, 1929.
Benton County Medical Society, February 13, 1929.
Dent County Medical Society, April 3, 1929.
Marion County Medical Society, April 8, 1929.
Platte County Medical Society, April 11, 1929.
Atchison County Medical Society, April 22, 1929.
Christian County Medical Society, April 24, 1929.
St. Francois-Iron County Medical Society, April 24, 1929.
Schuyler County Medical Society, May 3, 1929.
Shelby County Medical Society, May 6, 1929.
Lafayette County Medical Society, May 15, 1929.
Scotland County Medical Society, May 22, 1929.
Henry County Medical Society, June 20, 1929.
Grundy County Medical Society, July 15, 1929.
Macon County Medical Society, July 15, 1929.
Wright-Douglas County Medical Society, August 6, 1929.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met Wednesday evening, June 5, 1929, at St. Joseph.

Dr. W. T. Elam, St. Joseph, moved that Dr. John M. Doyle, St. Joseph, be made an Honor Member. The motion was seconded and carried and Dr. Doyle was elected an Honor Member.

On motion of Dr. Floyd H. Spencer, St. Joseph, seconded and carried, Dr. H. W. Westover, St. Joseph, was also elected an Honor Member.

Dr. Daniel Morton, St. Joseph, spoke concerning the deaths of members and the poor attendance of our members at their funerals. This criticism appeared just and timely and many of those present expressed their regrets for this apparent lack of interest and respect.

Dr. W. T. Elam, St. Joseph, chairman of the Noyes Hospital Committee, reported that his committee, composed of Drs. John M. Bell, J. F. Owens,

L. P. Forgrave and W. T. Stacy, met with the executive committee of the staff of the Noyes Hospital, Drs. H. S. Conrad, C. A. Good, E. A. Mendell, and J. F. Owens. At that time Dr. L. P. Forgrave moved that the committee proceed to initiate legal action to ask removal of the present trustees of Noyes Hospital and of Mr. Noyes' estate, on grounds of lack of interest and incompetence and their expressed determination and desire to close Noyes Hospital, and that the committee seek appointment of new trustees who are in sympathy with the bequests of Mr. Noyes. The motion was seconded by Dr. H. S. Conrad and carried.

It was moved by Dr. C. A. Good, seconded by Dr. J. M. Bell, and carried, that the committee begin proceedings for the interpretation of the will of Mrs. S. W. Noyes, especially that part relating to the maintenance of Noyes Hospital.

Dr. H. S. Conrad moved that a committee of three be appointed by Dr. W. T. Elam to confer with Homer King, Richard Duncan, and Mayor Louis V. Stigull, and to make arrangements for a meeting with the Commerce Club and other clubs of the city, which in their opinion will be beneficial to Noyes Hospital. Seconded by Dr. L. P. Forgrave and carried. Dr. Elam appointed the following committee: Drs. H. S. Conrad, C. A. Good, and J. M. Bell.

On motion of Dr. W. T. Elam, seconded and carried, the report was accepted.

It was moved, seconded and carried, that the Noyes Hospital Committee be allowed to continue their work.

Dr. Daniel Morton, St. Joseph, gave a brief summary of the more important events of the State Meeting.

T. L. HOWDEN, M.D., Secretary.

CALDWELL COUNTY MEDICAL SOCIETY

The Caldwell County Medical Society met in the Library Building at Hamilton, Thursday, June 27, 1929, at 2 p. m. Members present: Drs. H. R. Booth, Tinsley Brown and L. M. Daley, of Hamilton; B. F. Carr and T. W. Scanlon, of Polo; G. S. Dowell, Braymer; W. S. Shouse, Kingston; E. A. B. Thompson, Breckenridge. Dr. Caryl Potter, St. Joseph, and Dr. Ross A. Hopkins, Jefferson City, representatives of the State Board of Health, were visitors. The minutes of the meeting held at Polo, April 4, were read and approved.

Dr. Ross A. Hopkins addressed the Society on the work of the State Board of Health, especially with reference to sanitation and other means for preventing the spread of diseases.

Dr. Caryl Potter spoke on the use of uterine pessaries, especially the stem, and stressed the danger of its use in causing tubal pregnancy. He also spoke on the treatment of varicose veins by injection.

The meeting proved to be very interesting. The visitors were given a vote of thanks.

TINSLEY BROWN, M.D., Secretary.

CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society met at Van Buren, May 2, 1929. Members present: Drs. W. T. Eudy and Frank Hyde, of Eminence; T. W. Cotton, Van Buren. Visitors: Drs. W. L. Brandon, H. M. Henrickson and A. R. Rowe, of Poplar Bluff.

Dr. W. L. Brandon, Poplar Bluff, gave an inter-

esting lecture on "Hernia," illustrated with lantern slides, which was enthusiastically discussed.

This was followed by a general discussion and case reports.

Election of officers was held resulting in the following being elected: President, Dr. Frank Hyde, Eminence; secretary, Dr. W. T. Eudy, Eminence.

The next meeting will be held at the call of the president.

W. T. EUDY, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The June festival meeting of the Clay County Medical Society took place at the Odd Fellows Hospital in Liberty, June 27. The ladies' auxiliary met concurrently.

All officers were present. Thirty-four were seated at noon dinner, served by the young girls of this great institution. Drs. C. C. Conover, Noah Adams, R. D. Irland and W. W. Harrington, of Kansas City, with their wives, were invited guests. The dinner was both substantial and refined. Country ham, fried chicken, great bowls of nut-brown gravy, hot rolls, potatoes a la Missouree, dainty salads, iced tea and coffee—all and more—topped off with raspberry ice. With us in the dining room were Mr. and Mrs. Rogers, superintendents, Mrs. Major, matron, and several nurses. Dr. F. H. Matthews, resident physician, served as master of ceremonies. Of course everybody was made to feel very much at home. At the conclusion of the feast, Dr. Matthews and Mrs. Rogers expressed warmly their appreciation of the Society meeting under the home-like roof of the great benevolent institution. A handsome good-will offering in cash emphasized the warm regard of the guests for the noble workers, the hostesses. Every one praised the little ladies for their orderly attendance.

Immediately following the dinner the scientific session convened. Dr. W. H. Goodson, Liberty, reported a case of acute rheumatic fever which presented many important complications, each highly interesting to every one present. Dr. C. C. Conover, Kansas City, discussed the case fully, including treatment. This alone repaid members fully who attended this meeting.

Called to the operating room, several tonsillectomies were performed by Dr. Noah Adams, Kansas City, assisted by Dr. W. W. Harrington, Kansas City. The operating room, designed by Dr. Matthews, is the last word in efficiency and equipment. A latest model X-ray apparatus has been installed.

A beautiful cataract operation was performed by Dr. J. W. McKee, Kansas City; wonderful technic in extraction of the lens.

Back to the assembly hall, Dr. R. D. Irland, Kansas City, addressed the meeting on the diagnosis and treatment of gallbladder infections. This lecture included points of interest to every practitioner of medicine and was discussed by practically every one present. Dr. Irland could not have chosen a better subject.

The business session then opened. Dr. C. H. Suddarth, Excelsior Springs, reported on his activities at the State Meeting at Springfield.

Dr. Suddarth moved that the dues of the Clay County secretary-treasurer, Dr. J. J. Gaines, Excelsior Springs, be paid out of the treasury of the Society, because of the rather exacting and burdensome duties required of that official. The motion was seconded by two members. After energetic refusal on the part of the secretary, the motion carried unanimously.

The meeting adjourned, in the feeling that this was the best meeting of the year if not in our history.

J. J. GAINES, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held its regular meeting at eight p. m., June 4, 1929, in the Joplin Y. M. C. A. with Dr. E. D. Hatcher, Carthage, president, presiding. There were seventeen members and seventeen visitors present. The minutes of the last meeting were read and approved.

Dr. Harry M. Gilkey, Kansas City, addressed the meeting on "Nutritional Diseases of Children," illustrating the different conditions with lantern slides.

Dr. Orville Withers, Kansas City, gave an interesting talk on "The Irritable Colon."

Both papers were well discussed.

Meeting of June 11, 1929

The Society met at Broadlawn, June 11, at 6:30 p. m., with twenty-eight members and thirty-eight visitors present.

At the short business session a motion carried that the meetings be suspended until October. A banquet was served to the members and their wives and the visitors.

After the banquet Dr. G. L. Harrington, Kansas City, spoke on "Psychotherapy and Mental Hygiene."

Dr. Paul F. Stookey, Kansas City, read an instructive paper on "The Treatment of Diphtheria."

Both papers were enjoyed by every one present.

H. L. WILBUR, M.D., Secretary.

THE KANSAS CITY ACADEMY OF MEDICINE

Meeting of April 12, 1929

IS EPSTEIN'S NEPHROSIS A CLINICAL ENTITY?—By DR. RALPH H. MAJOR.

In 1877 Bartels described chronic parenchymatous nephritis; in 1905 Mueller described nephrosis, and later Munck described lipid nephrosis. Osler, thirty-seven years ago, gave a clinical description of chronic parenchymatous nephritis in which he mentioned that there was no enlargement of the heart, there was edema, and the patients recovered. This description is comparable to that of the other conditions named above and to that now known as Epstein's nephrosis.

The diagnosis of Epstein's nephrosis is based upon laboratory findings. There is hypercholesterolemia. But this has also been found in cases of chronic parenchymatous nephritis, particularly associated with renal edema. However, there may be no increased cholesterol in these cases, and there may be a high cholesterol content without edema in certain cases of diabetes.

In Epstein's nephrosis, low blood-pressure is described, but investigators have decided that it is of little diagnostic value in renal disease and not necessarily characteristic of Epstein's nephrosis alone.

The relative increase in the ratio of blood globulin to albumin described in Epstein's nephrosis has been found in glomerulonephritis with acute exacerbations and in chronic parenchymatous nephritis.

Epstein thought that his nephrosis was due to a metabolic disorder with thyroid deficiency. Yet while these patients have increased tolerance for thyroid, no striking relief from symptoms is mani-

fested when it is given. Our own cases, after failure to improve with thyroid, responded well to such therapy as typhoid vaccine or parathyroid. Therefore, there is just as much ground to think that the disease is on the basis of a parathyroid deficiency. Many cases of chronic nephritis with hypertension or cardiac edema have responded well to thyroid medication. I believe that chronic hypothyroidism is not the underlying cause of Epstein's nephrosis.

In connection with the infectious theory, six of our seven cases had chronic infections, such as pyelitis or abscess. In children, particularly, with nephrosis many are relieved when nasal infections are cured.

The pathological picture of Epstein's nephrosis is usually that of a nephrosis with a chronic glomerular nephritis. Nephrosis means degeneration but it may be the first stage of an inflammation. Nephroses usually show tubular changes with marked fatty degeneration. They may represent a tubular nephritis.

The prognosis is generally better than in glomerulonephritis. Therefore, it seems to me that Epstein's nephrosis is a tubular nephritis (parenchymatous nephritis) with marked fatty degeneration and edema, and it is not entirely due to renal disease alone.

DISCUSSION

DR. P. M. KRALL: I should like to emphasize that the metabolic disturbances may be either a cause or an effect, and that the peculiar type of edema present is strikingly labile or shifting. Experimentally, at least, there must be tubular damage before the blood chemical picture of a nephrosis is secured. Genuine nephroses never die with uremia; they may die with complications, such as a nephritis.

DR. R. L. HADEN: Often the histological picture cannot be determined by the clinical picture. This is in keeping with Dr. Major's contention.

DR. F. C. NEFF: In a small series of cases, one out of every five children with renal disease had nephrosis.

DR. F. C. HELWIG: The report of our own case was attacked by observers in Minnesota as one of glomerulonephritis superimposed upon chronic parenchymatous nephritis. We found a hypercholesterolemia and lipid bodies in the urine. The myelin kidney of Munk shows evidence of interstitial lipid infiltration, a double refractile lipid body—the characteristic pathological picture that appears to me probably due to an infectious process. It is occasionally found in diabetes.

DR. MAJOR, in closing: Possibly the edema in such cases means poor heat radiation and hence a low basal metabolic rate. The clinical groups of kidney disease encountered are glomerular, tubular and mixed nephritis. Generally the prognosis is considered good in cases of nephrosis, but many reports have been made only after a few months' observation of the patients. Of our eight patients, all eventually died except two, and one of these is going to die. The prognosis is a little better in children than in adults.

CEREBROSPINAL LOCALIZATION.—

By DR. G. WILSE ROBINSON.

Accurate intracranial localization depends upon a knowledge of the anatomical relations of the various nerve tracts in the brain. Both vertical and horizontal levels must be determined. Many lesions are

on a vascular basis, hence the intracranial vascular distribution should be well known.

Lesions that cause positive symptoms, such as spasm and convulsions, are extrapyramidal. Pyramidal lesions produce negative symptoms, such as paralysis. In subcortical lesions of the sensory radiation, as a rule, the nearer the lesion is situated to the internal capsule the greater the sensory disturbance.

In a few cases of hemiplegia at autopsy no local brain lesion is found—"hemiplegia sine materia." Such is not infrequently the case in those who died with uremic poisoning. Lacunar hemiplegia is caused by small lesions, the result of softening secondary to capillary hemorrhages. A few cases of homolateral hemiplegia are probably due to a failure of the pyramidal tracts to decussate.

NEUROLOGICAL SURGICAL CLINIC.

—By DR. F. R. TEACHENOR.

Case 1. Man, aged 55. Had tabes dorsalis with severe pains and gastric crises of 5 years' duration. Became morphin habitue.

There are three ways in which pain in such cases may be alleviated by surgical means: (1) stretch the splanchnic plexuses; (2) intradural or extradural rhizotomy; (3) other surgical procedures. In this patient, the anterolateral spinal tracts were sectioned bilaterally with very good results. Now the patient has no sense of pain in either leg as high as the ensiform (fifth dorsal vertebra). The next time we will go in at the level of the third segment. This patient still has burning at the epigastrium in connection with his crises. He was free of all pain for three months, but the gastric distress came back when he resumed specific treatment.

Case 2. Woman, aged 50. Trigeminal neuralgia. Pseudo-trigeminal neuralgia on a basis of tooth or sinus disease was ruled out. The lower branch of the trigeminal was involved. There are three possible methods of treatment: (1) gas inhalations, which given temporary relief; (2) alcohol injections which when repeated several times fail to yield such good results; (3) radical operation which gives a permanent cure. With the last named, the mortality is now practically nil. One complication to be guarded against is trophic ulcers of the cornea which are due to a loss of the sensation of pain.

In this patient, the ophthalmic branch was saved by cutting two thirds through the nerve behind the ganglion, thus avoiding the sympathetic root. The motor root to the muscles of mastication was also saved.

DISCUSSION

DR. G. WILSE ROBINSON: The spinothalamic tract presumably carries all the pain and thermal sensation fibers from the opposite side of the body and half of the tactile fibers on the same side. In Case 1 the tactile fibers were probably not cut. I believe an operation at a point above the gastric level would control the gastric crises. I have found the Swift-Ellis treatment controls this type of pain satisfactorily.

Bilateral trigeminal neuralgia is uncommon. A patient of mine was operated upon by Dr. Cushing eleven years ago for left-sided neuralgia. He developed right-sided trouble later, involving all three branches of the trigeminal. He objected to operation because from his previous experience he had paralysis of the left-sided muscles of mastication. I injected the ganglion and he was relieved of pain

but had some paralysis of the muscles of mastication now on the right side also and severe corneal herpes. In some of my patients alcohol injections have given relief for as long as ten years, and often for two years.

DR. C. C. NESSELRODE: An article by Dr. Dandy tells of a method of approach by which corneal and motor disturbances are avoided. Has Dr. Teachenor had any experience with it?

DR. TEACHENOR, in closing: Answering Dr. Nesselrode's question, I believe it is a matter of technic chosen by the operator. If the geniculate ganglion is disturbed there may be facial palsy. Approach via the posterior fossa is less apt to lead to damage to this ganglion. The alcohol injections have the same result as the knife but are not under such accurate control.

LAFAYETTE COUNTY MEDICAL SOCIETY

The Lafayette County Medical Society crossed the line into Saline County and held its regular meeting at Marshall conjointly with the Saline County Medical Society, June 25, 1929, at the Missouri State School (for the feeble-minded and epileptics). They were the guests of Dr. E. E. Brunner, superintendent of the institution. Members present: Drs. B. T. Payne and C. T. Ryland, of Lexington; W. A. Braecklein, J. De Voine Guyot and W. C. Webb, of Higginsville; Lewis Carthrae, Jr., Corder; E. L. Johnston and F. M. Shryman, of Concordia; W. E. Martin and R. C. Schooley, of Odessa; W. G. Harwood, Dover; J. W. Horner, Alma; L. S. James and G. A. Richart, of Blackburn; W. F. Bickford, A. E. Gore and D. F. Manning, of Marshall; F. A. Stahl, Malta Bend; James F. Jarvis and J. H. Owens, of Sweet Springs. Guests present: Drs. G. Wilse Robinson, Ralph W. Holbrook and Walter F. Holbrook, of Kansas City; W. T. Atwood, Carrollton, and James F. Jarvis, Jr., of Sweet Springs.

Dr. E. E. Brunner, Marshall, read a paper on the various endocrine disorders, especially their relation to the mentally deficient. An abundance of clinical material was shown to illustrate the cases discussed. The subject was presented in Dr. Brunner's characteristic able manner.

Dr. Brunner's paper was discussed by Drs. G. Wilse Robinson, Walter F. Holbrook and Ralph W. Holbrook, of Kansas City; Drs. W. A. Braecklein and J. De Voine Guyot, of Higginsville. Following this Dr. Brunner conducted a ward walk and inspection of the School.

A delightful luncheon was served at 5:30 o'clock on the lawn of the institution by Dr. and Mrs. Brunner. They were assisted in the entertainment of the guests by Dr. and Mrs. N. K. Pope and Mrs. F. H. Maples, of Marshall.

This meeting was without a doubt the most interesting and profitable meeting of the year, and every one went home filled with an inspiration and desire to assist Dr. Brunner in the wonderful work he is carrying on for the unfortunates at the school.

It might not be amiss to suggest that other county societies would well profit by a visit to this institution.

J. DE VOINE GUYOT, M.D., Secretary.

ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

An enjoyable meeting of the St. Francois-Iron County Medical Society was held May 29, 1929, in

the office of Dr. W. E. Aubuchon, Leadwood. Dinner was served to about thirty, including guests.

Dr. W. J. Bryan, Flat River, gave a lecture on "Nontuberculous Conditions Simulating Tuberculosis," illustrated with lantern slides.

This was a very interesting and instructive contribution.

RALF HANKS, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The St. Louis County Medical Society met June 19, 1929, in the First Congregational Church of Webster Groves. The meeting was called to order by the president, Dr. A. W. Westrup, Webster Groves, at 3:30 p. m. with the following members present: Drs. H. N. Corley, F. P. Gaunt, C. C. Irick, F. C. E. Kuhlmann, W. F. O'Malley, A. W. Westrup, of Webster Groves; E. O. Breckenridge and W. H. Townsend, of Maplewood; F. P. Knabb, Valley Park; O. D. Seabaugh, Kirkwood; O. N. Schudde, Ferguson; O. W. Koch, Clayton. Visitor: Dr. Jansen.

Dr. W. F. O'Malley, Webster Groves, reported on the meeting of the standing committee with the St. Louis County court. At this meeting Attorney Arthur V. Lashley, Webster Groves, was appointed to represent the interest of the Society before the Supreme Court, and prevent if possible the Taxpayers League from obtaining a restraining order preventing the county court to continue with the county hospital.

Dr. A. W. Westrup, Webster Groves, reported that Mr. Lashley very ably represented the Society, and to date the Taxpayers League has not been able to stop work on the county hospital.

It was moved by Dr. H. N. Corley, Webster Groves, seconded by Dr. W. F. O'Malley, Webster Groves, that a fee of \$100, with expenses, be paid Mr. Lashley for his services.

Dr. O. W. Koch, Clayton, contributed \$24.50, the amount of Mr. Lashley's expenses.

Dr. L. C. Obrock, St. Louis, presented a transfer card from the St. Louis Medical Society, and Dr. Obrock was elected to membership.

The speaker of the afternoon was Dr. Walter R. Hewitt, St. Louis, whose subject was "A Suggested Plan of Treatment of Some Acute Surgical Infections." The subject was well presented and to the point.

A rising vote of thanks was extended Dr. Hewitt.

The meeting adjourned and a lunch of coffee, sandwiches and lemonade was served.

E. E. TREMAIN, M.D., Secretary.

TANEY COUNTY MEDICAL SOCIETY

At the May 7, 1929, meeting of the Taney County Medical Society the following officers were elected for the year 1929: President, Dr. T. A. Coffelt, Springfield, vice president, Dr. S. S. Richmond, Branson; secretary-treasurer, Dr. Guy B. Mitchell, Branson.

GUY B. MITCHELL, M.D., Secretary.

WRIGHT-DOUGLAS COUNTY MEDICAL SOCIETY

The Wright-Douglas County Medical Society met in the Masonic Hall at Ava, Thursday, July 25, 1929, at 2:00 p. m. with the president, Dr. L. T. Van Noy, Norwood, in the chair. The following members were present: Drs. L. T. Van Noy, Norwood; R. M. Norman and J. D. Ferguson, of Ava;

A. C. Ames, R. A. Ryan and E. C. Wittwer, of Mountain Grove; J. A. Fuson, Mansfield, and J. R. Davis, Noble. Visitors: Drs. J. L. Gentry and M. C. Gentry, of Ava; E. G. Beers, Seymour; W. R. Beatie, W. A. Delzell, O. C. Horst and W. L. Turner, of Springfield.

Dr. J. D. Ferguson, Ava, reported that he had some cases to present. The president appointed a committee, composed of Drs. R. A. Ryan, W. A. Delzell and O. C. Horst, to examine the patients and make a report.

The minutes of the last meeting were read by the secretary and were approved.

Dr. R. A. Ryan, Mountain Grove, gave the following report on the cases examined: (1) A middle-aged woman, with a chronic abdominal trouble, seemingly enteritis. (2) A younger woman who presented neurotic symptoms.

A third patient, a child of six, was brought in and examined by several of the physicians and found to be delicate and presenting symptoms of pulmonary tuberculosis.

A positive diagnosis was not made in any of the cases on account of lack of facilities for a thorough examination.

The program on the subject of abdominal pain was then presented. The following assignments of topics relating to the divisions of the abdomen had been made previous to the meeting:

"General Pain," more or less diffuse over the entire abdomen, Drs. A. C. Ames and F. B. Dailey, Mountain Grove.

"Epigastric Pain," Drs. R. A. Ryan, Mountain Grove, and J. D. Ferguson, Ava.

"Hypochondriac Pain," Drs. E. C. Wittwer, Mountain Grove; J. R. Mott, Hartville, and Dr. Gentry, Ava.

"Umbilical Pain," Drs. J. A. Fuson, Mansfield; B. E. Latimer, Hartville, and James B. Little, Norwood.

"Iliac and Inguinal Pain," Drs. R. M. Norman, Ava; J. M. Hubbard and H. G. James, Mountain Grove.

"Hypogastric and Pelvic Pain," Drs. L. T. Van Noy, Norwood, and J. B. Cunningham, Ava.

Each speaker was asked to name all the conditions he could think of in which pain in that locality is a symptom and to name other symptoms by which the different conditions can be diagnosed. A lengthy discussion followed the consideration of the various abdominal regions and every one present gleaned some profitable information.

Dr. W. R. Beatie, Springfield, a proctologist, spoke on rectal conditions that cause pain, their diagnosis and treatment.

A resolution was adopted thanking the guests for their part in the program and an invitation was extended to them to come again.

The meeting adjourned at 5:30 p. m. to meet at Norwood in September.

A. C. AMES, M.D., Secretary.

WOMEN'S AUXILIARY

OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.
President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schaufler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

SCHOLARSHIP FUND

Contributions to the Scholarship Fund have been received as follows:

County	Amount
Boone	\$25.00
Johnson	50.00
Saline	25.00
St. Louis (County)	9.50
Total	\$109.50

CORRESPONDENCE

INTERPRETATION OF ROENTGENOGRAMS

St. Louis.

To the Editor:

During my regular visit at the Mt. St. Rose Sanatorium recently I was handed four roentgenograms to interpret. These plates had not been made at the hospital. The exposures had been made about one year apart. One plate was good, three were atrocious. A written interpretation accompanied the latter plates. I will quote one sentence on the apex findings: "The apex does not flash during the inspiration." That was the entire findings on the apex.

Two hours later a physician called at the office with a set of plates, stereo of the chest, in which no part of the lung was visible. He asked for an interpretation of the lung findings. The plates were made by a physician in general practice.

Recently a doctor called me over the phone asking whether I would take a roentgenogram of the hip. This doctor had been persuaded to spend about \$6500 for an X-ray laboratory for his own use.

This is in no wise a complaint. I wish only to call attention to the fact that too much X-ray work is being turned out by those who have not had the necessary preparation for the specialty and of course their work is only a detriment to the calling as well as to the patient. Any physician with average intelligence can learn roentgen laboratory work in a reasonable time, but to interpret the findings of the chest, stomach and the soft parts takes much time and long experience. I see no way of counteracting this poor work except by educating the physician and showing him what can be accomplished.

E. H. KESSLER, M.D.

Books for Leisure Moments

The third edition of "The Story of Human Progress" by Leon C. Marshall (Macmillan & Co., New York) is very complete, bringing the tale of human progress up to the present time and including the many recent manifestations of the skill and scientific efforts of human beings to advance themselves, to add to their comforts, to make life a more complete, a more interesting and a more valuable existence.

The summary of the principal steps in the utilization of nature and natural products by the human mind reads like a fascinating tale of romance. Step by step there is built up for us the complex social and economic fabric which we take so much for granted. The warp and woof is then separated, thus permitting us a glimpse of the art of the weaver in its relative simplicity. The integration of life, so common-place yet so essential to our very existence, is dissected so that the story serves to make us realize our own part in this matter of human progress.

This book should be read by all who desire to live in a scientific atmosphere. It is of distinct value as a simple summing up of our factual knowledge and so may be read with interest by the general student. It is a distinctly important addition to the history of the development and progress of the human race.

A. McM.

A book dealing with the rise of radio has recently been written by Paul Schubert, entitled "The Electric Word" (The Macmillan Company, New York City). This book will prove valuable as well as interesting to all those interested in radio. It contains a scientific discussion of the subject, especially concerning the question as to what is the medium through which this thing radio travels. The material "ether" that was once believed to be the substance that bore the waves of Hertz, is now considered as passé and in its place has been conceived an ether much more flexible—one that is seen with enough imagination not to demand too fine a limitation of its physical characteristics. Some even have abandoned the ether concept altogether and call the waves "space waves" or "radio waves." However, the word "ether" has been in use for so many hundreds of years, even long before any one knew that such a thing as radio existed, that we find many still clinging to this old theory. It is a most elastic word and as it has been very closely associated with the radio art since that art's beginning, the author has considered it broad enough to cover "space" in general. Throughout the book Mr. Schubert has used the word "ether" to express the medium through which radio communications travel. Also, he says he has spoken of "ether waves" without any wish to imply restriction of a physics that expands daily.

This book quite thoroughly covers the rise of radio, from the discovery of Hertzian waves and the first practical use of them by Marconi in 1900, to its present day position of eminence. Much is said of the radio as to its practical use as a system of communication. The reader will be fascinated by this story of an interplay of science, business and politics.

L. C.

RECENT LICENTIATES TO PRACTICE MEDICINE IN MISSOURI

The following applicants for license to practice medicine in Missouri were examined by the State Board of Health, June 12, 13, 14, 1929, and received licenses to practice:

<i>Name</i>	<i>School</i>	<i>Address</i>
Allevato, Joseph John.....	St. Louis University, 1929.....	St. Louis
Appleberry, Charles Homer.....	Washington University, 1929.....	St. Louis
Aymond, Branch John.....	St. Louis University, 1929.....	St. Louis
Baldree, Chas. Edward, Jr.....	University of Tennessee, 1928.....	St. Louis
Balfour, William Dewey.....	Washington University, 1927.....	St. Louis
Bardenheier, Jean Philip.....	St. Louis University, 1929.....	St. Louis
Bickel, Carl Samuel.....	Washington University, 1929.....	Albany, Mo.
Blume, Herbert Charles.....	St. Louis University, 1929.....	St. Louis
Boren, Paul Randolph.....	Washington University, 1929.....	Cincinnati, Ohio
Bradley, Frank Richard.....	Washington University, 1928.....	St. Louis
Burke, Fabian Joseph.....	St. Louis University, 1928.....	St. Louis
Burpee, George Frederick.....	Washington University, 1929.....	St. Louis
Carron, Oscar Adolph.....	St. Louis University, 1929.....	St. Louis
Chapman, Paul Hiram.....	St. Louis University, 1929.....	St. Louis
Craig, Owen William.....	St. Louis University, 1929.....	St. Louis
Creclius, Edwin Darwin.....	St. Louis University, 1929.....	St. Louis
Damron, Oscar Homer.....	St. Louis University, 1929.....	Silex, Mo.
Dixon, Henry Hadley.....	Washington University, 1929.....	Chicago, Ill.
Dowell, Donald Maurice.....	Washington University, 1929.....	Braymer, Mo.
Eades, George Robert.....	St. Louis University, 1929.....	Goss, Mo.
Elson, Julius.....	Washington University, 1928.....	St. Louis
Eschenbrenner, John Wm., Jr.....	Washington University, 1929.....	St. Louis
Farris, Henry George.....	St. Louis University, 1929.....	St. Louis
Flotte, Bernard Henry.....	St. Louis University, 1929.....	St. Louis
Forsee, James Hedges.....	Washington University, 1929.....	Columbia, Mo.
Gottfried, Francis Conrad.....	St. Louis University, 1929.....	St. Louis
Graneto, Joseph Anthony.....	St. Louis University, 1929.....	St. Louis
Guzak, Steve.....	St. Louis University, 1929.....	Marissa, Ill.
Hamm, Lee Norman.....	Washington University, 1929.....	Granite City, Ill.
Hampton, Henry Eugene.....	Meharry Medical College, 1928.....	St. Louis
Hansen, Arthur Lloyd.....	University of Iowa, 1928.....	St. Louis
Hoernschmeyer, Jos. Lewis.....	St. Louis University, 1929.....	St. Louis
Hoover, Seldon Rae.....	St. Louis University, 1929.....	Slater, Mo.
Howe, Louis Francis.....	St. Louis University, 1929.....	Webster Groves, Mo.
Howlett, Roger Gladstone.....	St. Louis University, 1929.....	St. Louis
Hughes, Shelby Bond.....	St. Louis University, 1929.....	St. Louis
Jacobs, Raymond George.....	University of Iowa, 1929.....	St. Louis
Jennings, Dwight Lacey.....	St. Louis University, 1929.....	St. Louis
Joraschy, Walter Robert.....	Washington University, 1929.....	St. Louis
Kelly, Thomas Joseph.....	St. Louis University, 1929.....	St. Louis
Klein, Harry Adolph.....	St. Louis University, 1929.....	St. Louis
Kleine, Hans Louis.....	Washington University, 1929.....	St. Louis
Klote, Marceine Denver.....	St. Louis University, 1928.....	St. Louis
Koon, Bernard Thomas.....	St. Louis University, 1929.....	St. Louis
Kovitz, Louis.....	Washington University, 1929.....	St. Louis
Krolicki, Thaddeus A.....	St. Louis University, 1929.....	St. Louis
Lange, Harry William.....	Northwestern University, 1928.....	Kansas City, Mo.
Lange, Howard Louis.....	St. Louis University, 1929.....	St. Louis
Leiker, Raymond Joseph.....	St. Louis University, 1929.....	Walker, Kans.
Leuschner, Armin Walter.....	Washington University, 1929.....	St. Louis
Lindley, E. C.....	Washington University, 1929.....	St. Louis
Lorenz, Herman Edward.....	St. Louis University, 1928.....	Portland, Oregon
McCraw, Doyle Clinton.....	St. Louis University, 1929.....	St. Louis
McNamee, William Francis.....	St. Louis University, 1929.....	St. Louis
Marston, Warren Galbraith.....	St. Louis University, 1929.....	St. Louis
Meyer, Curtis Augustus.....	St. Louis University, 1929.....	Afton, Mo.
Mueller, Adolph Reginald.....	Washington University, 1929.....	St. Louis
Mueller, Roland Frederick.....	Washington University, 1929.....	St. Louis
Muether, Raymond Oliver.....	St. Louis University, 1929.....	St. Louis
Nobles, William Walton.....	Washington University, 1928.....	Marks, Mo.
Paluka, Sidney.....	Washington University, 1929.....	St. Louis
Perry, Eugene Boone.....	Howard University, 1928.....	St. Louis
Poor, Carl William.....	St. Louis University, 1928.....	Kansas City, Mo.
Pruett, Buchard Simpson.....	Washington University, 1929.....	St. Louis
Powers, Pierce William.....	St. Louis University, 1929.....	St. Louis
Queen, Frank B.....	Washington University, 1929.....	St. Louis
Reich, Oliver Frank.....	St. Louis University, 1929.....	St. Louis
Reichman, John Joseph.....	St. Louis University, 1929.....	St. Louis

<i>Name</i>	<i>School</i>	<i>Address</i>
Reichman, Martin Abraham.....	University of Illinois, 1929.....	St. Louis
Reis, Carl James.....	St. Louis University, 1929.....	St. Louis
Rosenberg, Henry Esmoud.....	St. Louis University, 1929.....	St. Louis
Rowlette, Avery Peck.....	Washington University, 1929.....	St. Louis
Ryan, John Joseph.....	St. Louis University, 1929.....	St. Louis
Sandison, James Calvin.....	University of Georgia, 1927.....	St. Louis
Sartorius, Herman Carl.....	St. Louis University, 1929.....	St. Louis
Schaal, James Eugene.....	St. Louis University, 1929.....	St. Louis
Schmiesing, Clifford August.....	St. Louis University, 1929.....	St. Louis
Seibert, Walter Joseph.....	Washington University, 1926.....	St. Louis
Sferra, Alfred Frederick Wm.....	St. Louis University, 1929.....	St. Louis
Shlenker, Lenard L.....	Washington University, 1929.....	St. Louis
Sinclair, Alexander Bernard.....	St. Louis University, 1929.....	Kansas City, Mo.
Slater, Frank Joseph.....	Washington University, 1929.....	St. Louis
Soucy, John Clovis.....	St. Louis University, 1929.....	E. St. Louis, Ill.
Smyth, Joseph Henry.....	St. Louis University, 1929.....	St. Louis
Staehle, Melvin Everett.....	Washington University, 1929.....	St. Louis
Stevens, Lawrence Hefron.....	St. Louis University, 1929.....	St. Louis
Stolar, Jacob.....	Washington University, 1928.....	St. Louis
Stuck, Walter Goodloe.....	Washington University, 1929.....	St. Louis
Sullivan, William Joseph.....	St. Louis University, 1929.....	St. Louis
Tegtmeier, Loraine Edward.....	St. Louis University, 1929.....	St. Louis
Temple, Carl Willard.....	St. Louis University, 1929.....	El Paso, Texas
Thurston, Eric Washington.....	St. Louis University, 1929.....	St. Louis
Touhill, Neal Joseph.....	St. Louis University, 1929.....	St. Louis
Treiman, Robert Crage.....	Washington University, 1929.....	St. Louis
Van Besian, George Joseph.....	St. Louis University, 1929.....	St. Louis
Vollmar, Clarence Joseph.....	St. Louis University, 1929.....	St. Louis
Weber, Frank Clifford.....	Washington University, 1929.....	St. Louis
Weber, Lawrence Frank.....	Washington University, 1929.....	St. Louis
Weiler, Kennet Jerome.....	Northwestern University, 1926.....	St. Louis
Wilson, Thomas Philip.....	Washington University, 1929.....	St. Louis
Woodburn, Joel Tinder.....	Washington University, 1929.....	St. Louis
Wotawa, William Joseph.....	St. Louis University, 1929.....	St. Louis
Yuen, Henry Lup.....	St. Louis University, 1929.....	St. Louis
Zamora, Edwin Rafeal.....	St. Louis University, 1929.....	St. Louis
Zarsky, Emil Peter.....	St. Louis University, 1929.....	St. Louis

BOOK REVIEWS

REGIONAL ANESTHESIA. Its Technic and Clinical Application. By Gaston Labat, M.D., Laureate of the Faculty of Sciences, University of Montpellier, France, etc., with a foreword by William J. Mayo, M.D. Second edition, revised. With 367 original illustrations. Philadelphia and London: W. B. Saunders Company. 1928. Price, cloth \$7.50.

The foreword by Dr. William Mayo contains some valuable advice. The chapter on General Principles of Technic is carefully written and well illustrated.

Blocking of Cranial Nerves, is well illustrated and charts, diagrams and plates help elucidate the text, his technic of blocking of the Gasserian ganglion being given in detail. The same may be said of the chapter on Operations of the Head and Face, Nasal, Pharynx, Eye, Ear and Mastoid regions. These chapters thoroughly demonstrate the relation of neural anatomy to analgesia.

In the chapter on Blocking of Spinal Nerves Dr. Labat discusses very painstakingly the newer paravertebral block or paravertebral conduction anesthesia. In paravertebral sacral block he describes both the transsacral block and the presacral block; next the blocking of the brachial plexus, median nerve, musculospiral nerve, etc. The caudal block follows, very thoroughly described. This chapter contains many useful diagrams. Sacral block, or the association of caudal block with transsacral block is described. Then in order follow sciatic

block, great sciatic nerve block, popliteal block, etc., with various indications.

After discussing operations on the neck, thorax, abdomen he takes up the interesting subject of splanchnic analgesia, by the anterior as well as the posterior route, also describing in detail his own technic, and finally discussing the practical considerations of the various technics.

Subarachnoid block or spinal anesthesia is very fully described and many good illustrations shown. After effects and their treatment are discussed as well as indications and contraindications, advantages and disadvantages.

A chapter is devoted to a general discussion of the value of regional anesthesia and finally the author gives his code for regional anesthesia in condensed form.

The book is interestingly written in an easily understandable style, the various technics are concise and the illustrations well correlated with the text.

F. H. R.

PATHOLOGY. For Students and Practitioners. Authorized translation of the Lehrbuch der Pathologischen Anatomie. By Edward Kaufmann, M.D., Professor of General Pathology and Pathological Anatomy and Director of the Pathological Department, University of Gottingen. Translated by Stanley P. Reimann, M.D., Pathologist and Director of the Research Institute of the Lankenau Hospital, Philadelphia, etc. In three volumes, 1072 illustrations. Philadelphia: P. Blakiston's Son & Company.

As this edition now appears in English we can do

no better than republish our comment on the German edition. The comment follows:

Kaufmann's pathology was first published in 1896 in a one volume edition of less than half its present size. The present edition is in two volumes of 1000 and 962 pages respectively; an increase of eight hundred thirty-seven pages over the sixth edition. This would represent then practically the increase of an average size textbook on this subject. The only thing that can be said about this great work is that for more than two decades Kaufmann has been considered the pathologist's Bible. Not only is it inclusive of all the worth while pathological work, but it is so well arranged and evaluated that it has no competition in its line.

In this edition the illustrations have been greatly increased and very fine colored plates added. The press work and paper are also superior to the early editions. One idea of the magnitude of the book can be grasped by stating that one thousand seven hundred and twenty-two references to the literature are listed; an index medicus in itself.

Space is too limited to detail specifically the subject matter of this work, but it may be stated that every subject, from the circulatory organs to the bones and joints, from skin to endocrines, from digestive organs to genito-urinary tract is treated with the greatest completeness. Every chapter opens with a survey of the embryology and anatomy of the organ and is followed by the physiology before pathology is taken up. The literature covered is not by any means confined to the German but worthy contributions, whether in English, French, Italian, Japanese or what not, will be found referred to provided they add to the advancement of our knowledge of pathology.

R. L. T.

THE VERTEBRAE. Annals of Roentgenology. A Series of Monographic Atlases. Edited by James T. Case, M.D., Ex-President of the American Roentgen Ray Society. Volume Eight. New York: Paul B. Hoeber, Inc. Price \$10.00.

This volume of about 250 pages is printed on good paper with illustrations above the average. Being limited to the vertebrae only, an exhaustive description is given of the normal spine as well as the abnormalities met with.

The first chapter is devoted to standardization of technic, changes incident to age, posture and the location where the changes are usually found in the spine.

The second chapter describes the congenital abnormalities, fracture of the bodies of the vertebrae with the posttraumatic diseases of the vertebrae.

Chapter three deals with the diseases which destroy the bone, both malignant and benign, and several chapters are devoted to special parts of the spine and a good description of the technic of each part is well presented with numbers of illustrations. A special chapter is devoted to the fifth lumbar vertebra, especially giving the various anomalies which are normal to its formation.

The industrial back cases are considered and the sacro-iliac synchondrosis with its various changes due to disease and injury is considered sufficient to give an understanding of the difficulties met at this union. The sacrum and coccyx are as thoroughly explained as the upper spine.

A final chapter deals with medico-legal expert testimony. Some good advice is given the roentgenologist who is to appear in court as a witness.

After many years in active practice of roentgenology, I found this volume interesting and a good stimulant to prevent rust.

E. H. K.

ROENTGENOLOGY. Its Early History, Some Basic Physical Principles and the Protective Measures By G. W. C. Kaye, O.B.E., M.A., D.Sc., F. Inst. P. With Forty-Nine Illustrations. New York: Paul B. Hoeber, Inc. Price \$2.00.

The volume is the Caldwell lecture of 1927 delivered before the American Roentgen Society meeting in Montreal, Canada. For the monograph the following subjects are added which interest the roentgeneologist: The early philosophers; The nature of Roentgen rays; Total reflection of Roentgen rays; The prismatic refraction of Roentgen rays; The diffraction of Roentgen rays by ruled gratings are explained in separate chapters, and the nature of Roentgen rays, a very essential thing for the roentgenologist, is given in detail.

Roentgen Ray Protection is separately treated in one chapter, and Measurement of Protective Values is explained. Working conditions in roentgenographic departments are given from a standpoint of the worker and should be well considered. A prophetic view of roentgenology is cast by the author in the final chapter, Future of Roentgenology.

References, appendix, author index, and subject index, are given. The illustrations and the printing are on good paper. The monograph is interesting, can be read with benefit and much profit. The author is one who wholly understands the subject under consideration.

E. H. K.

DISEASES OF THE BLOOD. By A. Piney, M.D., M.R.C.P., Research Pathologist, Cancer Hospital, London. With 120 illustrations, six in colour. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1928.

This volume is concise, well printed, beautifully illustrated and easy to refer to for the essential practical features of diseases of the blood. It is an elementary rather than a detailed or technical work on hematology. More attention is given to the Arneth classification of leukocytes than to the Schilling modification. An appendix of three chapters deals with hematological technic, blood groups and transfusion and, finally, the effect of X-rays and radio-active substances on the blood.

R. L. T.

ANGINA PECTORIS. By Harlow Brooks, M.D., Emeritus Professor of Clinical Medicine, New York University, Visiting Physician, City Hospital, etc. New York and London: Harper & Brothers. 1929. \$2.50.

This monograph is most complete and thoroughly modern in its consideration of a subject which might be called trite were it not for the fact that it is so vitally important to us and to those of our patients so unfortunate as to present this symptom-complex.

Dr. Brooks, a physician of vast experience, has presented his subject in a most interesting and exceedingly rational way, calling into play the host of clinical facts which have served to clarify his own ideas on this rather confused clinical subject.

The chapters on the differentiating of true angina from pseudo-angina and toxic angina contain a very satisfactory summing up of the important clinical facts and are distinctly valuable.

Throughout the monograph we were impressed by the stress placed on the clinical manifestations of angina pectoris. Consideration of the patient is the keynote of the discussion. The mechanical or electrical diagnostic adjuvants are properly placed in the diagnostic schema.

A. Mc. M.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME 26

OCTOBER, 1929

NUMBER 10

E. J. GOODWIN, M.D., Editor
1023 Missouri Building, St. Louis, Mo.

PUBLICATION { J. C. B. DAVIS, M.D., Chairman
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ORIGINAL ARTICLES

THE DIAGNOSIS OF ALLERGY*†

CHARLES H. EYERMANN, M.D.

ST. LOUIS

In 1910, Meltzer¹ directed attention to the similarity of anaphylactic shock as found in the guinea pig and the symptoms and lesions noted in bronchial asthma of the human. Thus was a distinctly laboratory procedure associated with a clinical entity and there followed, in an endeavor to clarify the etiology of this disease, a vast amount of clinical study of bronchial asthma and of laboratory study of anaphylaxis. It was subsequently determined that the anaphylactic reactions occurring in man and manifested as bronchial asthma did not precisely correspond to the anaphylaxis as found in the guinea pig, so other terminology was suggested to designate this reaction in the human. The term allergy is the one most frequently employed at present to define this reaction; but the terms, human hypersensitiveness, protein sensitization, and atopy, are also used.

The clinical studies of bronchial asthma, when studied from the allergic standpoint, not only established the fact that a large percentage of such asthmatic sufferers might be relieved and even permanently cured, but in addition indicated that there were associated conditions which hitherto had been considered of uncertain etiology. These conditions existed either coincidentally and were improved with the improvement of the bronchial asthma, or they were present when the bronchial asthma was in abeyance and then disappeared when the bronchial asthma recurred. In this manner, the clinical conditions of hay-fever, vasomotor rhinitis, eczema, urticaria with angioneurotic edema, and in some gastro-intestinal disturbances, such as dyspepsia nervosa and mucous colitis, purpura and migrainoid headaches, are

increasingly held to be allergic phenomena. This specialized study of bronchial asthma has also brought about a highly definitive method of studying all cases suspected of being allergic in type, and has also produced a mass of detailed information, statistical and otherwise.

History taking in cases suspected of being of an allergic nature is of utmost importance in establishing the diagnosis. A complete history will not only determine the existence or nonexistence of the allergic state, but quite often in addition will point the etiologic diagnosis. Most histories fail in that they are short and superficial and the advantage of knowledge which might have been gained by further questioning is lost. The only too frequently neglected family history is of utmost significance in strengthening a diagnosis of allergy. If asthma, hay-fever, urticaria or eczema has been present in the antecedents, or in the brothers and sisters, or in the patient's children, there is strong presumption that allergy exists in the patient. This is supported by the combined figures of Spain and Cooke,² and Cooke and Vander Veer,³ who found that fifty-three per cent of nine hundred and sixty-six cases of allergy gave a positive history for allergy in the antecedents. Recently, Balyeat⁴ reported such an antecedent history in sixty per cent of one thousand cases of allergy. Adkinson,⁵ Rackemann⁶ and others have reported on the hereditary influence of allergy in smaller groups of cases of allergy, and the positive antecedent allergic history is found to be better than fifty per cent. In contrast to these figures are the reports of the antecedent history of one hundred and fifteen normal individuals studied by Spain and Cooke² who noted a history of allergy in but seven per cent, while Balyeat⁴ found a positive history of asthma or hay-fever in relatives of first degree in nine per cent of four hundred and three normal individuals. The conclusion is inevitable that a complete family history in all suspected cases, will afford important data in definitely determining allergy in more than fifty per cent.

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

† From the Department of Medicine of Washington University and the Medical Service of Barnes Hospital.

A history in detail of the patient himself is necessary, and inquiry must be directed not only into past medical history but also through channels which at first thought might seem unrelated to medicine. The age of onset is extremely important, for it has been developed that the earlier in life symptoms of hay-fever, vasomotor rhinitis, eczema, urticaria or asthma, manifest themselves the more likely it is that the individual is allergic. The probability of allergy is greater when these conditions are found to alternate, for example an eczema disappearing with the onset of asthma. It is often impossible to obtain a clean cut history of allergic manifestations, so that attention must be directed to proper interpretation of the so-called colds and bronchitis occurring during infancy and childhood. If they are afebrile in type and accompanied by a nonpurulent discharge, they probably evidence allergic phenomena and are not to be considered as infections. It is also of importance to bear in mind that all allergic phenomena disappear for variable periods of time following an acute infection; so that when a suspected allergic phenomenon disappears following a febrile reaction, to reappear at some later date, the probability of allergy is substantially strengthened. Yet further definite inquiry must be made as to food intolerance, and as to feeding difficulties during infancy and childhood, to what happened when egg or cow's milk or any other food was eaten for the first time, as to the occurrence of skin rashes, thought to be due to food, medicines, or contact with animals or plants. Such information often offers strong confirmation of a suspected allergy.

Frequently, occupation determines the causative factor so that this portion of the history should be stressed. Bakers, farmers, millers, cooks and others who may have routine contact are often sensitive to grain dust (wheat flour, etc.). Powdered drugs may affect druggists and dentists. It is evident that any animal epidermal substance may react upon those who come in contact,—thus farmers, equestrians, dairymen, laboratory workers, veterinarians, etc. But to the casual observer it is not so evident that they may likewise affect those who have contact with a commercial product of these substances. All types of feathers are found in bedding and in down comforts. Horse, cattle, rabbit and goat hair may be present in mattresses and furniture. Cat and rabbit hair are found in furs, pillows and the toys of children. Camel hair, as well as horsehair, is found in furniture, and camel hair is likewise found in clothing and scarfs. Woodworkers, leather workers, and dyers may

have allergic lesions due wholly to the contacts developed in their several occupations. Cosmetics (orris root, rice powders, perfumes, sachets, hair tonics and dyes) may produce lesions in those who handle them. Furthermore, it is of great importance to determine the occupation of all other members of the household with whom the patient comes in contact, for they may convey sufficient allergic material on their clothing or person to cause symptoms in a highly sensitive individual.

The history of the character of the illness in its initial period is necessary, and its progress must be accurately traced up to the date of interrogation in order that proper evaluation may be made to differentiate the natural or inevitable progress of the affliction from the complications and the sequelae of the disease. Are the symptoms dependent upon the time of the year? Are they seasonal, are they non-seasonal? If seasonal, one routinely considers pollens, seasonal foods, and seasonal changes of environment; if non-seasonal one considers those factors with which the patient has constant contact, either by ingestion, by inhalation, or by external application; thus, foods, animal epidermal substances, house dusts, orris root-containing-substances, occupational dusts, drugs, etc. One questions the relation of symptoms to the ingestion of food in general, and as to a particular food; some individuals are fully aware that the eating of certain foods is commonly followed by peculiar symptoms, but fail to establish association between them and the presenting complaint. One questions the possible relation of the symptoms to changes in residence; some individuals know that certain localities, or houses or areas of the country will increase or will decrease their symptoms. Even the daily variation should be interrogated, for some patients are characteristically worse at night, or on arising, or following meals.

In addition to this exhaustive clinical history, one must also obtain a description of the patient's environment. This should include the character of the bedding, carpets and furniture, the presence of house pets, the proximity of stables and animals, the presence of house plants, a knowledge of the local flora, and the use of insecticides, face talcum, and sachet powders. One should also inquire as to the proximity of factories which generate dust. Thus Figley and Elrod⁷ have reported thirty cases of bronchial asthma living within a radius of one mile, all due to the dust from a linseed oil mill. The writer has observed an asthmatic sensitive to wheat whose attacks disappeared when she moved from a small town

where there were two flour mills in operation.

A dietetic history is of further assistance. By this means one may determine, both quantitatively and qualitatively, the foods eaten and the frequency with which they occur in the diet. One must also inquire as to methods of cooking, the use of spices, condiments, and flavors, the use of raw or uncooked foods. Of considerable worth is a dietetic diary in which is to be recorded all foods eaten, these to be studied in relation to all symptoms.

By this method, one may not only determine the probable existence of the allergic state, but may also gain a diagnostic solution. Such a history requires patience, thoroughness, adequate knowledge of the subject, and intelligent cooperation on the part of the patient.

Confirmatory evidence as to the existence of the allergic state may be obtained by the performance of sensitization tests. However, a positive skin test merely indicates the presence of the allergic state and does not of necessity develop the etiologic diagnosis. It is also becoming increasingly probable that the allergic state exists in the presence of negative skin tests. This may be due to the fact, as shown by Alexander,⁸ that in a given allergic individual only certain organs are receptive to allergens, and unless the skin is likewise receptive, negative tests will result. This has been demonstrated by Peshkin,⁹ also by Peshkin and Fineman,¹⁰ who observed children clinically sensitive to pollen, with negative skin reactions to pollen, but who yielded positive ophthalmic reactions when pure pollen was placed in the conjunctival sac. Furthermore, Kahn and Grothaus¹¹ were able to obtain positive reactions by the hypodermic or subcutaneous method when the intradermal method was negative.

It is also possible that negative tests have resulted from failure to employ the proper allergic substance. This is disproved, at least in part (despite the fact that variety of test substances has greatly increased), by clinical reports which show that the elimination of the clinically suspected allergic substances has been followed by relief, even when it produced no positive skin test. Rackemann¹² reports eighteen cured asthmatics, and considerable improvement in the remaining nineteen cases, out of thirty-seven cases of bronchial asthma with negative skin tests by change of residence or occupation. Kahn¹³ reports that in children clinically sensitive to pollen, whose asthma lasted six years or less, questionably positive or negative tests were present in forty per cent of sixty-nine cases. Spain¹⁴ has observed a case of chronic coryza due to the ingestion of chocolate, with a persistently negative skin

test to chocolate. Duke¹⁵ has reported a case of gastro-intestinal allergy, with negative skin tests, in which the proper exclusion diet brought a therapeutic cure. In our own experience, we have seen cases with negative skin tests, but having nasal symptoms¹⁶ as the result of food allergy; also cases of bronchial asthma¹⁷ relieved by environmental change that were not skin sensitive. Furthermore, it is a matter of common experience among allergists that cases of urticaria rarely give positive sensitization tests, yet frequently this group will be relieved of their symptoms through proper exclusion diets.

Using the same allergen, and uninfluenced by specific treatment, it has also been a matter of clinical experience that skin tests will vary as to size and appearance when tested at different times. In our own experience the skin test has been negative for some time, and later become positive, such factors as potency and technic of testing being completely controlled. Studying this variability of the skin test, Alexander¹⁸ found that injecting the same amount of allergen into various sites there was developed a marked variation in the size of the resulting wheals. Thus the response was two or three times larger on the back than on the leg. There was no constant anatomical factor but the reactions on the back and abdomen were larger than elsewhere.

Clinical and experimental evidence indicates that the skin test is a variable factor and when positive merely shows that the skin is positive, and that the individual is allergic. It does not, at all times, indicate that the allergen giving the positive reaction is responsible for the presenting symptoms. Thus Peshkin⁹ found positive skin reactions in ten per cent of children with asthma in whom there was no etiologic connection. This has also been observed by Rackemann¹² and the writer.¹⁶ To prove such etiological connection it is essential to show that the patient has contact with the reacting allergen during the period when symptoms are present. To confirm the etiologic diagnosis, the symptoms should be capable of reproduction by deliberate exposure to a sufficient amount of the reacting allergen, either by ingestion or by inhalation. Clinical evidence yet further indicates that a negative skin test does not disprove the existence of allergy. Its presence may be proven by the same methods employed in proving the etiological connection between a positive skin test and the presenting symptoms; namely, in endeavoring, under controlled conditions, to reproduce the symptoms by deliberate exposure to the suspected allergens.

Save for research or statistical purposes, it

is unnecessary to test every patient with all available allergic substances. It is here that the clinical history, coupled with the environmental and dietetic history and diary, is of the greatest assistance. Such history often indicates the probably responsible allergic element, but as a general rule tests should be done with all substances with which the patient has had contact. These include feathers, orris root, the dander of the horse, the dog and cat, pyrethrum, wool, and the air borne pollens indigenous to the patient's environment; and likewise the usual foods occurring in the diet, such as milk, egg, wheat, potato, beef, pork, pea, bean, corn, tomato. A complete history should indicate whether it be necessary to test with artichoke, or deer hair, or the pollen of the Paper Mulberry (*Papyrus Papyrifera* Kuntze).

The eosinophilic reaction is quite often generally recognized as a phenomenon of allergy. The reaction, however, is not limited to the blood for it also occurs in the nasal secretion, in the sputum, and in the tissues. In a study of three hundred and forty-six cases of allergy, Brown¹⁹ found an average of seven per cent blood eosinophils in asthma, five and one half per cent in seasonal hay-fever, seven per cent in perennial hay-fever, five per cent in eczema, and four per cent in urticaria. He also found that the number of eosinophils in the sputum of asthmatics ran in parallel with the number of eosinophils in the blood. This, however, is not a constant finding, for it has been a matter of our own experience to note many eosinophils in the sputum and to observe but a normal number in the blood stream. Eosinophilic infiltration of the bronchial muscles has been found at postmortem in cases of bronchial asthma by Huber and Koessler,²⁰ by Kountz and Alexander²¹ and by Steinberg and Figley,²² and is employed as a point of diagnostic differentiation between cases of bronchial asthma and other pulmonary pathology. The occurrence of eosinophils in the sputum of patients with dyspnea is practically diagnostic of bronchial asthma. The presence of eosinophils in the nasal secretion is presumptive evidence of an allergic nasal reaction.¹⁶ Therefore it is held that if it can be demonstrated that there is an increase of eosinophils in the blood stream or their presence can be demonstrated in the nasal secretion, in the sputum, or in the tissues, the existence of the allergic state is substantiated.

Failure to demonstrate this reaction is not to be construed that allergy is absent; for one may have sought for eosinophils either at the wrong time or at the wrong place. Thus Koes-

sler,²³ and also Sternberg,²⁴ have found that a blood eosinophilic exists in hay-fever only during the period of symptoms, and as a rule is not present during the period of freedom from symptoms. In addition Sternberg²⁴ has found that a blood eosinophilia follows therapeutic injection of pollen solutions, and he considers blood eosinophils in hay-fever as a shock reaction. With this in mind, may not the mechanism of blood eosinophils be the same for other allergic conditions? One assumes that the blood eosinophils, found at any one time, merely indicates the eosinophils in transit to the reacting tissue.

There exist then three factors upon which to base a diagnosis of allergy: An exhaustive and detailed clinical history dealing with the presenting symptoms, the antecedents, the environment and the diet of the patient; the results of sensitization tests properly performed and correctly interpreted; and the demonstration of eosinophils. When all three factors are present, then allergy surely obtains; but if only one or two of these are present then allergy should be suspected. It is to be emphasized, however, that the diagnosis of allergy is not solely and exclusively dependent upon the results of sensitization tests. The presence of positive skin tests, or an eosinophilic reaction (one or both) are to be held merely confirmative proof of the facts gleaned from the clinical history,—nor are these facts controverted by lack of such evidence.

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DISCUSSION

DR. JOSEPH GRINDON, St. Louis: There are reactions which are common to all men, which we know as pharmacological reactions. Again, there are those which are not pharmacologic, and which we designate as allergies, which word means "another reaction," or, "a different reaction." We have heard a great deal as to the definition of the word, as to just what we should call allergy and what not, and we have heard it said that a true allergy can only be produced by contact with a protein. Others include under the term, reactions to other substances as well. That question has forever been set at rest by the work of Jadassohn using the *Ascaris*. It is known that there are laboratory workers who develop a most obstinate urticaria from contact with the *Ascaris*. Jadassohn found he could obtain from the *Ascaris* a potent substance which dialyzed, and therefore was not a protein, with which the same symptoms could be produced. Bloch, working with the Chinese primrose, found a substance, with which he could reproduce all the symptoms of primrose dermatitis. He only used minute quantities. The formula was $C_{18}H_{20}O_3$. Not only not a protein, but not even containing nitrogen. I think these results set at rest the question as to whether you can get allergic reactions from a nonprotein.

I agree with Dr. Eyermann as to the fact that skin reactions often fail to give us any evidence, so we have gone back to the old-fashioned methods, using skin reactions only once in a while when we cannot do anything else.

There is a method with which the Doctor no doubt is familiar, which is a little more definite than the older method, and that is the transference of a local allergic condition to a nonallergic individual. It is the Prausnitz-Küstner method, in which 1/10 cc. of the serum of the supposedly allergic individual is introduced intradermally into the nonallergic person, and then some of the antigen introduced by the scratch method at the same site. Within fifteen minutes or half an hour, if the donor be allergic, there develops a wheal. The antigen scratch may be made a few days later, but the best time is one day later. Then perhaps it takes a day to disappear. While such methods often succeed in urticaria, as a rule they fail in eczema.

DR. D. D. STOFER, Kansas City: After exhausting the ordinary routine allergy tests, it often happens that if you let the patient go home for a day or two and return, you will find a delayed reaction. This is very important and I think should be observed more carefully.

Another thing is the fact that heat, light and cold oftentimes produce allergic phenomena. This was brought out in a case I had in which the man said that whenever he went into a hot room he had asthma; or any exercise, such as running or climbing, would give him asthma. At the time he came to the office he was examined and there was no question but that he was suffering from asthma. His temperature was 99.4. A cold towel was put over his chest. This procedure was repeated with the result that in six minutes his temperature had gone down to 98.2, and he had complete relief from the asthmatic attack. I think it is very important to inquire into the physical allergy standpoint when the other allergy tests are found negative.

DR. CHARLES H. EYERMANN, closing: I am not certain that all cases of physical allergy are due to physical agents alone, for it has been our experience to have had an interesting case in which we could

produce urticaria by the application of heat in various forms, but in which after a diet excluding milk and milk products the heat had no further effect. In this instance, the physical etiology seemed to be clinically uppermost, while as a matter of fact the individual was milk sensitive. I have not had an extensive experience with cases of physical allergy so that I am unable to say just what percentage of cases, which at first thought seemed to be due to physical agents alone, might also have reaction to other allergic substances. The experience just mentioned, however, should lead one to seek for other allergic substances as etiologic factors even if symptoms can be reproduced by physical agents.

The question of whether allergy is a protein reaction has considerably agitated the allergic world. It is certain that there are substances which have no protein element and yet are capable of inducing allergic reactions in the human. This has occurred with substances in which the reacting substances had been considered as protein, yet the allergic reaction could be reproduced when the protein was completely destroyed. The reaction of Prausnitz and Küstner as mentioned by Dr. Grindon is particularly valuable in infants, but recent experiments of Dr. Peshkin in 18 children, ranging in age from 7 months to 14 years, all of whom have been under observation for 2 years, show that this method employed as a routine method in children was unsatisfactory and he believed that its employment as a substitute for the direct methods of testing was impractical. So our clinical tests are not, even by this method, an infallible sign of allergy. The history, irrespective of the allergic phenomenon, is the most important element in developing the diagnosis.

SCOPOLAMINE-MORPHINE SEMINARCOSIS*†

O. S. KREBS, M.D.

ST. LOUIS

Fourteen years ago, almost to the day, a symposium on so-called twilight sleep was held at the St. Louis Medical Society.¹ At that meeting Dr. Tilles reported his experience with scopolamine-narcotine narcosis and reported eleven private cases where he had employed the method. Drs. Gellhorn and Kerwin at the same time reported fifteen City Hospital cases and three private cases where they had employed Siegel's modification of Gauss' method. Dr. Otto H. Schwarz presented a paper dealing with an experimental and clinical study of scopolamine-narcotine seminarcois and presented fifteen cases. Since this time various other publications from the St. Louis clinics have come out as more cases were observed.

In January, 1919, Dr. Henry Schwarz presented the first thousand cases delivered in Barnes Hospital.² In March, 1922, the second thousand was reported before the Washington

* Read in the Symposium on Obstetrics at the 72d Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

† From the Department of Obstetrics, Washington University School of Medicine, St. Louis.

University Medical Society;³ in June, 1923, the third thousand was reported before the American Medical Association⁴ at San Francisco, and in November, 1924, the fourth thousand was presented before the Section on Anesthesia of the Southern Medical Association.⁵ On April 30, 1929, the first thousand deliveries in the new St. Louis Maternity Hospital was considered in reference to hyoscine-morphine seminarcois before the meeting of the St. Louis Medical Society.⁶ It has been very interesting to note that four weeks ago

Dr. Tilles in reporting over eleven hundred and fifty deliveries from the Jewish Hospital at a meeting of the St. Louis Gynecological Society, was able to include in that number a large series where scopolamine or hyoscine seminarcois was employed. Dr. Tilles was among the first in St. Louis to use scopolamine to produce seminarcois in labor and still employs the method with satisfaction, as is the feeling of those using a similar technic in the Washington University Obstetrical Department. Before the use of scopolamine in combination with narcofine or some other opium alkaloid was used for the induction of twilight sleep, it was deemed advisable to study the action of scopolamine and the various opium alkaloids on the heart and respiration in animal

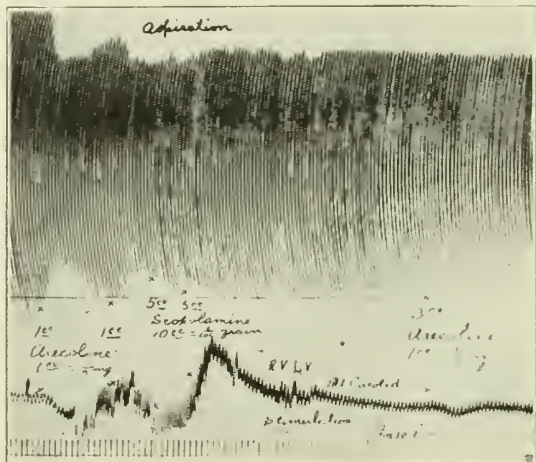


Fig. 1. Arecaline given to show action of this drug on constrictor fibers in the bronchial muscle. It stimulates the vagi, with slowing pulse and lowering blood pressure. The bronchial muscle is contracted. Scopolamine relaxes the bronchial muscle and depresses the vagi, thereby accelerating the pulse. Giving arecaline subsequently has no action on the bronchial muscle because scopolamine has already caused dilatation by paralyzing the endings in the bronchial muscle.

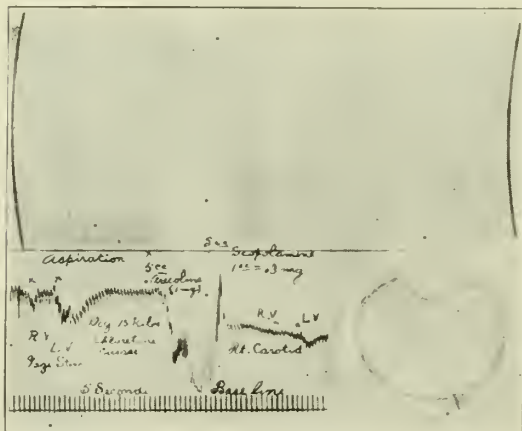


Fig. 2. Arecaline stimulates constrictor endings, showing marked contraction of the bronchial muscle. Scopolamine paralyzes these endings, showing subsequent dilatation. Right and left vagi are stimulated. When scopolamine was at its full effect (with dilated bronchioles) this stimulation shows no effect on the cardiac mechanism because of the paralysis of the vagi by scopolamine. The insert, showing a cross section of the eye, reminds us that at the height of scopolamine action there is a coincident paralysis of the endings of the third nerve in the iris.

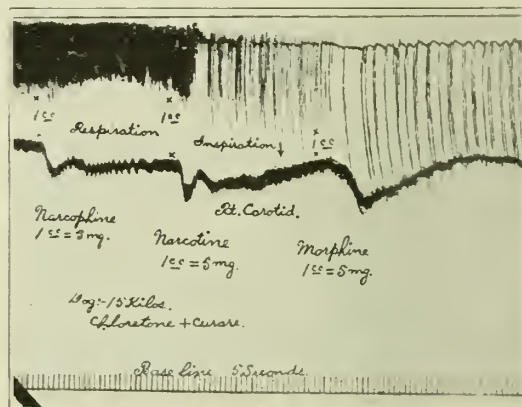


Fig. 3. Upper curve shows respiration; lower curve, pulse and blood pressure. Narcofine produces only slight bronchial constriction with slight drop in blood pressure. With narcotine the respiration is lengthened, slowed and irregular, which condition is exaggerated by the action of morphine.

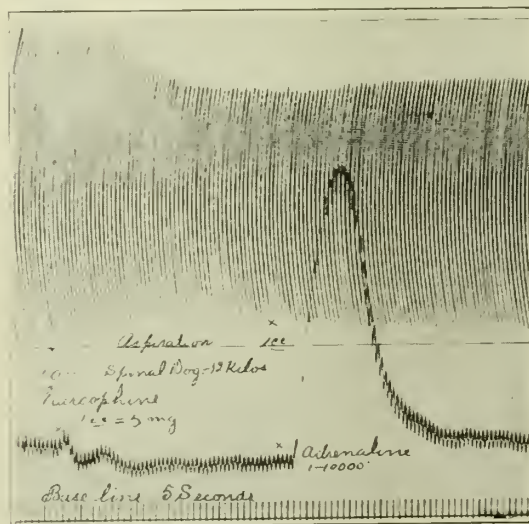


Fig. 4. Shows the action of narcofine. There is slight bronchial constriction with slight drop in blood pressure and very little bronchial dilatation following adrenalin.

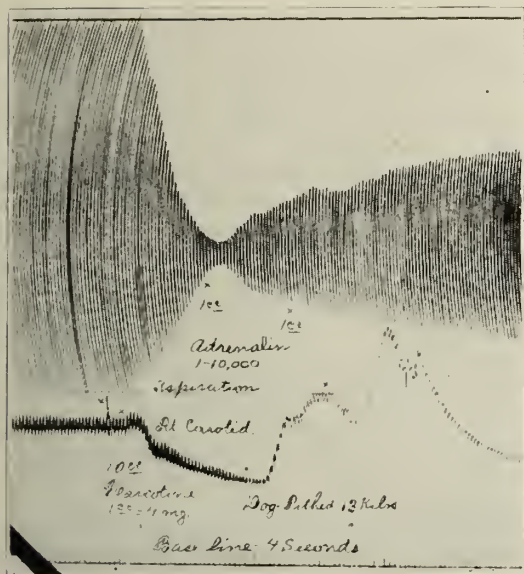


Fig. 5. Shows extreme bronchial constriction, almost causing death of the heart from asphyxia. Adrenalin causes some bronchial dilatation and smaller rises in blood pressure.

experiments, in the hope that the experience so gained would be a guide in the clinical work and lead to the avoidance of some of the undesirable by-effects on the child, which were up to that time so frequently reported in the literature.

The above experiments were conducted in the pharmacological laboratories of the School of Medicine of Washington University under the supervision of Dr. Dennis Jackson. The points ascertained were, generally: First, scopolamine in doses considerably larger than those used in twilight sleep has no material effect on blood pressure or on respiration; second, the well known paralyzing action of scopolamine on the peripheral nerve endings seems to have no serious by-effect in twilight sleep; it usually manifests itself in a parched condition of the mouth and throat of which the patients complain; third, when the dose of scopolamine exceeds the amount desirable for the purpose of amnesia it causes complete mydriasis, which constitutes a warning signal to stop further injections of scopolamine; fourth, in animal experiments the paralyzing action of scopolamine on the peripheral nerve endings was illustrated by its action on the endings of the vagi in the bronchioles, by its action on the inhibitory terminals in the heart and by its action on the terminals of the third nerve in the iris; fifth, morphine, narcofine, and other opium alkaloids have a decided ill-effect on respiration. This effect is twofold for, in the first place, the respiratory center is depressed and, in the second place, these alka-

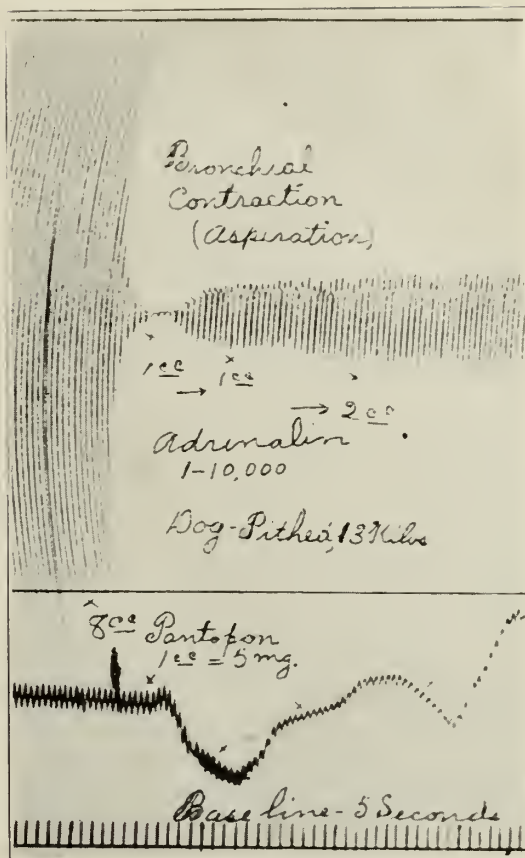


Fig. 6. Pantopon shows profound contraction of the bronchioles under a constant force of aspiration from the chest cavity (which before dilated chest widely); now no air enters lungs, asphyxia is soon developed and blood pressure falls, possibly from weakening of the heart. Adrenalin following pantopon produces a very slight rise in blood pressure and a minimal dilatation of the bronchioles. Normally, adrenalin will dilate the bronchioles widely by stimulation of the endings of the sympathetic bronchodilator nerves in the muscles of the bronchioles.

loids act directly on the muscular fibers of the bronchioles causing bronchial constriction. It was shown that the influence of narcofine on the respiration was considerably less than that of morphine and narcotine; sixth, these experiments seemed to prove that the use of scopolamine for the induction of twilight sleep was comparatively harmless, but that the use of opium alkaloids was likely to interfere with the prompt establishment of respiration in the new-born child. They also showed that narcofine was less harmful than morphine. The advantage of narcofine over morphine is not so great as it may appear at first sight. While morphine undoubtedly has the more harmful influence on fetal respiration, narcofine is administered in doses three times as large and thus the advantage in great measure is lost. We used narcofine in $1/2$ grain doses and now are using morphine in $1/6$ grain

doses. We have been using hyoscine hydrobromide in ampule form with morphine sulphate for the induction of twilight sleep. Various other preparations in tablet form have been tried out but the above is most convenient and uniformly active pharmacologically.

We use hyoscine-morphine seminarcois as a first stage measure. When the uterine contractions are strong and occur at regular intervals and usually when there is at least two fingers' dilatation in the primiparous patient, seminarcois is begun. In some cases where the contractions are painful and of good character and frequency, it is begun with practically no cervical dilatation, but this is a questionable procedure. In these cases we are always quite sure in our own minds, however, that the drugs will not stop labor entirely. In the multiparae, on the other hand, the procedure is usually begun with the first regular contractions that are painful.

The patient is always prepared for delivery before seminarcois is begun and, after the usual preparation, is sent to one of the delivery rooms. Her ears are stuffed with cotton moistened with oil and her eyes are covered with gauze held in place by adhesive strips. The initial dose of hyoscine hydrobromide is 1 cc. and contains 1/133 grain. With the first injection, separately or combined, is given 1/6 grain of morphine sulphate. These injections are given subcutaneously. This point is very important as it is not desirable to get the hyoscine to act quickly; on the contrary, one wishes it to take possession of the patient very slowly. The first injection usually causes dryness of the mouth and throat and a flushed condition of the face. The patient is encouraged to drink water freely at this stage.

The second injection is given usually forty-five minutes after the first one. This injection is usually as large as the first one. Morphine is never repeated after the first injection. We test the degree to which the patients are under the influence of the drug by a very simple yet accurate method. Before the second injection and before each contemplated subsequent injection, the patient is required to put her index finger to the tip of her nose, her eyes being covered. If she succeeds in doing this promptly she still retains locomotor coordination and the contemplated injection is given; if, however, she moves her finger around vaguely and misses the mark she has lost locomotor coordination and the injection is omitted, or the dose is reduced, for the patient has the desired amount of the drug. In most cases this stage is reached shortly after the third injection, but in not a small number before the time for the third injection.

The third injection is usually given forty-five minutes after the second one. If the patient at this time shows signs of going under the influence of the drug, such as drowsiness or sleeping between pains, but still manifests locomotor coordination, the third injection is reduced to 1/200 grain or less for the average woman. If no such signs are present the original full dose of 1/133 grain is given.

After the third injection most patients remain sufficiently scopolaminized for two hours or longer. At the expiration of this period full cervical dilatation has taken place in most cases and further injections are unnecessary and are to be avoided. The first stage of labor is over, or nearly so, and the time is close at hand at which the seminarcois should be deepened to complete anesthesia by one of the general anesthetics.

There are, however, numerous cases in which the first stage of labor is protracted for many hours, and even for a day or two. This condition is especially true in some primiparous women in whom the membranes have ruptured before the onset of labor, and some multiparous women in whom thorough repair of cervical lacerations together with fixation of the uterus forward by some abdominal operation has been performed. Some of these women suffer intensely and for many hours during the first stage of labor until dilatation is at last complete and final delivery is possible. It is in these cases that the hyoscine method has proved itself so valuable; it is in these cases, likewise, that the administration of the drug must be watched most carefully. The amount of hyoscine given depends entirely upon the degree to which the patient appears to be under the influence of the drug. The administration of the drug should be continued until the patient has lost locomotor coordination; when this stage is reached it should be maintained by small and infrequent doses.

The loss of locomotor coordination marks the one boundary of seminarcois. The patient must cross this boundary, which is "just enough," and she must be kept from crossing the other boundary, which is "too much." This other boundary is reached when, during a labor pain, the patient's pupils no longer show the usual dilatation at the height of the contraction because they are already dilated to the maximum by the action of the hyoscine on the terminals of the third nerve in the iris. These are the two boundaries which we watch by frequent tests during the administration of scopolamine or hyoscine for seminarcois. We test for the presence or absence of locomotor coordination until we know that the patient has crossed the first boundary, and we test the

pupils from time to time during a contraction to assure us that the patient has not crossed the second boundary. Keeping the patient on this narrow strip constitutes scientific seminar-cosis.

When the seminar-cosis is intensified to general anesthesia by a general anesthetic at the time of delivery, great care must be exercised to prevent the giving of too much anesthetic. Ten to fifteen drops of chloroform on a thin gauze mask are usually sufficient to render the patient completely relaxed. There is an inclination towards giving too much chloroform and by so doing the mother is not only chloroformed to a much deeper degree than the occasion demands, but the fetus is also chloroformed so deeply that it is bound to be born apneic, to become asphyxiated and to require resuscitation.

Morphine seminar-cosis is most applicable during the first stage of labor, particularly in the primiparous patient, or in the multiparous patient where previous repair work has been done on the cervix, or where the first stage is protracted and painful due to premature rupture of the membranes, or a long rigid cervix. In cases of delivery through the natural passages in women who, on a previous occasion, have been delivered by abdominal Cesarean section, it is of greatest importance to prevent all straining on the part of the parturient woman and to extract the child as soon as dilatation is completed, so as to keep all strain as far as possible from the uterine scar. In cases of pulmonary tuberculosis and in cardiac disease, seminar-cosis is also successfully used.

We may say here that after the method was employed in the first 150 to 200 cases it was felt that it was a procedure without appreciable danger to mother or child, and that it had no marked effect on the prolongation of labor. In the previous papers we have demonstrated the fact that it had a definite tendency to shorten the first stage and slightly lengthen the second stage. After we had derived a considerable experience from these cases, we felt that it had its greatest usefulness in cases where labor was likely to be prolonged, particularly in elderly primiparae and cases of moderately contracted pelvis. We did not, at any time, expect to show any brilliant statistical figures to point out the advantages of the method, but felt it was particularly indicated under such special circumstances.

In our previous papers we have stated that there are no disadvantages of the method either to mother or child, although the mother in some instances is somewhat restless during the pain and occasionally somewhat excitable. However, we know of no method which by such a simple procedure as two or three hypo-

dermic injections can result in such complete amnesia over a period of such considerable time, that enables at least eighty to eighty-five per cent of these cases to go through labor without its recollection. Fetal asphyxia is not increased, although an occasional child is born in a state of oligopnea, from which they usually promptly recover on the slightest stimulation.

The disadvantages are chiefly from the standpoint of the attendants. Some one must be constantly with the patient, particularly the one who is supervising the injections. We may say that much of our success with the method has been due to the untiring efforts of our house officers during this period of ten years. They have seen to it that the patients they have handled have suffered no unnecessary pain during their labor by the careful supervision of this method. The other disadvantage is the not infrequent restlessness and occasional excitability of the patient. This is, however, by no means striking. It has no effect on the patient herself but at times is quite taxing to the attendant. Dr. Richard Paddock, of the Obstetrical Department of Washington University, several years ago was working out a method and dosage for the combined use of hyoscine and magnesium sulphate in the control of these nervous manifestations, and found a marked sedative effect produced by the addition of magnesium sulphate.

I present a table showing the fetal mortality in the unreported cases delivered at Barnes Hospital since November, 1924, and those delivered at the St. Louis Maternity Hospital up to February 15, 1929. This is not a selected series, as was the fourth thousand. In the fourth thousand cases we employed the method in the ward service only in such cases in which no abnormality presented itself at the beginning of labor. This method excluded all cases in which the fetus was known to be dead and cases of moderately contracted pelvis where we could expect a prolonged labor as well as an abnormal mechanism. These cases were not allowed to suffer but were given nitrous oxide, as they desired it, each delivery room being equipped with a McKesson Junior special apparatus on a permanent stand. This instrument has been very satisfactory in the administration of nitrous oxide, which we believe is chiefly due to its simplicity. Therefore, in comparing the results which had been obtained in the second and third thousand cases with the fourth thousand, a marked improvement in fetal mortality figures is shown in the cases taking scopolamine-morphine. The comparative chart does not show this because private and ward patients are grouped; however, the individual series reports bring this out. This is further shown where the ward

cases which received scopolamine are compared with the private cases in the same series.

When administering seminarcosis to private patients there was no discrimination made as regards the type of case in which the method was employed and the difference in the figures, accordingly, is very much in favor of the ward cases. This is all the more remarkable when we consider that the ward cases, provided they show no abnormalities, are handled by the intern staff and residents exclusively, most of whom are getting their first experience in obstetrics. The idea of this series was to show definitely that seminarcosis of itself does not increase fetal mortality, and normal cases were used to show this.

Only those cases in which the fetus weighed 2,000 grams or more were included. The patients were divided into classes, depending upon the service in the hospital, namely, white ward, white private cases, and colored cases. The infants were considered as stillborn, as macerated at birth, or as having died within the usual period of hospital stay, two weeks. Many other factors that come into consideration are not discussed in this series because in previous publications many of these points, such as effect on length of stage of labor, operative interference, results in regard to amnesia and asphyxia in the new-born, were worked out quite satisfactorily.

Table 1.

Class	Seminarcosis	No. of Cases	Still-born	Per cent	Macerated	Per cent	Immediate Mortality	Per cent	Died in Hospital	Per cent	Total Mortality	Per cent
White primip. Ward	With	479	8	1.6	1	.2	9	1.8	3	.62	12	2.5
White multip. Ward	With	233	3	1.2	0	0	3	1.2	3	1.2	6	2.5
White primip. Private	With	593	4	.67	4	.67	8	1.3	4	.67	12	2.02
White multip. Private	With	470	2	.42	1	.21	3	.63	8	1.7	11	2.3
Black primip. Ward	With	219	3	1.3	0	0	3	1.3	3	1.3	6	2.7
Black multip. Ward	With	67	2	2.9	1	1.4	3	4.4	2	2.9	5	7.4
Total	With	2061	22	1.06	7	.34	29	1.4	23	1.1	52	2.5
White primip. Ward	Without	202	5	2.4	4	1.9	9	4.4	4	1.9	13	6.4
White multip. Ward	Without	743	13	1.7	5	.67	18	2.4	11	1.4	29	3.9
White primip. Private	Without	248	4	1.6	1	.40	5	2.01	6	2.4	11	4.4
White multip. Private	Without	489	4	.81	5	1.02	9	1.8	7	1.4	16	3.2
Black primip. Ward	Without	195	5	2.5	2	1.02	7	3.5	3	1.5	10	5.1
Black multip. Ward	Without	274	6	2.1	6	2.1	12	4.3	3	1.09	15	5.4
Total	Without	2151	37	1.7	23	1.06	60	2.6	34	1.5	94	4.3
Grand total	All types	4212	59	1.4	30	.71	89	2.1	57	1.3	146	3.4

Table 2 represents the same series, not including the macerated fetuses. This was prepared because some critics have felt that in

most of such cases twilight was not used and this fact relatively increased the fetal mortality in the non-twilight group.

Table 2

Class	Seminarcosis	No. of Cases	Still-born	Per cent	Died in Hospital	Per cent	Total Mortality	Per cent
White primip. Ward	With	479	8	1.6	3	.62	11	2.2
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Black primip. Ward	With	219	3	1.3	3	1.3	6	2.7
Black multip. Ward	With	67	2	2.9	2	2.9	4	5.9
Total	With	2061	22	1.06	23	1.1	45	2.1
White primip. Ward	Without	202	5	2.4	4	1.9	9	4.4
White multip. Ward	Without	743	13	1.7	11	1.4	24	3.2
White primip. Private	Without	248	4	1.6	6	2.4	10	4.03
White multip. Private	Without	489	4	.81	7	1.4	11	2.2
Black primip. Ward	Without	195	5	2.5	3	1.5	8	4.1
Black multip. Ward	Without	274	6	2.1	3	1.09	9	3.3
Total	Without	2151	37	1.7	34	1.5	71	3.3
Grand total	All types	4212	59	1.4	57	1.3	116	2.7

Table 3 shows a comparative study of the second thousand, third thousand, fourth thousand, and the present series.

The first reported series was compiled by Dr. Henry Schwarz, but was not included in the above because all cases where gestation had

Table 3

Class	Seminarcosis	Stillborn				Died				Combined Mortality			
		2nd 1000	3rd 1000	4th 1000	Present series	2nd 1000	3rd 1000	4th 1000	Present series	2nd 1000	3rd 1000	4th 1000	Present series
White primip.	With	.58%	1.3 %	2.09%	1.1 %	1.7 %	1.3 %	0 %	.65%	2.3 %	2.7 %	2.09%	1.7%
White multip.	With	.48%	1.5 %	1.8 %	.71%	.48%	.79%	0 %	1.5 %	.96%	2.3 %	1.8 %	2.2%
Black primip.	With	8.3 %	8.4 %	1.97%	1.3 %	0 %	0 %	0 %	1.3 %	8.3 %	8.4 %	1.9 %	2.6%
Black multip.	With	0 %	7.6 %	0 %	3.03%	0 %	3.9 %	0 %	3.03%	0 %	11.5 %	0 %	6.6%
Total	With	.85%	2.2 %	1.01%	1.07%	1.1 %	1.1 %	0 %	1.1 %	2.05%	3.3 %	1.01%	2.1%
White primip.	Without	3.5 %	3.7 %	2.5 %	2.02%	0 %	0 %	0 %	2.2 %	3.5 %	3.7 %	2.5 %	4.2%
White multip.	Without	.36%	.39%	.78%	1.3 %	.36%	1.5 %	.78%	1.4 %	.72%	1.9 %	1.5 %	2.8%
Black primip.	Without	0 %	9.09%	6.06%	2.5 %	0 %	4.5 %	12.1 %	1.6 %	0 %	13.6 %	18.1 %	4.1%
Black multip.	Without	0 %	4.3 %	3.6 %	2.2 %	0 %	0 %	1.2 %	1.1 %	0 %	4.3 %	4.8 %	3.3%
Total	Without	.78%	1.8 %	2.0 %	1.7 %	.28%	1.3 %	1.5 %	1.5 %	1.1 %	3.1 %	3.5 %	3.3%
Grand total	All types	.83%	2.1 %	1.3 %	1.4 %	.83%	1.2 %	.48%	1.3 %	1.6 %	3.3 %	1.8 %	2.7%

carried to 24 weeks or longer were included, and the other series was on a fetal weight basis. The first thousand cases follow as reported by Dr. Henry Schwarz. (Table 4.)

Table 4

Anesthetic	Number	Asphy- xiated	Condition of Children Who Died Be- fore Leaving	Still- born	Total Number of Dead Children	Per cent
Twilight	393	13	3	15	18	4.58
Chloroform	377	9	6	11	17	4.51
Nitrous oxide-oxygen..	69	1	0	4	4	5.80
Ether	54	2	2	7	9	16.66
Somnoform	4	0	0	0	0	0.00
None	103	1	1	7	8	7.76
Total	1000	26	12	44	56	5.60

The fifth table shows a total of all cases up to the present time, exclusive of Dr. Henry Schwarz' series.

CONCLUSIONS

In conclusion let me draw from my summary in the second thousand series. We feel

Table 5

Class	Semi- narcosis	Number of cases	Still- born	Macer- ated	Died in hospital	Total mortality	Per cent
White primip.	With	1916	23	5	17	45	2.3 %
White multip.	With	1336	14	1	13	28	2.09%
Black primip.	With	339	10	1	3	14	4.1 %
Black multip.	With	129	4	2	3	9	6.9 %
Total	With	3720	51	9	36	96	2.6 %
White primip.	Without	669	15	7	10	32	4.7 %
White multip.	Without	2064	21	17	26	64	3.1 %
Black primip.	Without	271	9	3	8	20	7.3 %
Black multip.	Without	442	11	13	4	28	6.3 %
Total	Without	3446	56	40	48	144	4.1 %
Grand total	All types	7166	107	49	84	240	3.3 %

that the methods for the conduct of labor as we use them can only be carried out by trained obstetricians in a maternity of moderate size; that they are not to be attempted in poorly appointed homes by any one, or under any circumstances by the average general practitioner. These individuals do not do operative surgery under the same conditions that they do their obstetrics, and the responsibility is as great in obstetrics as in operative surgery.

The fetal mortality in our series of cases, basing the mortality on deaths in infants weighing over 2,500 grams in the first four thousand cases, and 2,000 grams or over in the present series, was 3.3 per cent, compared to Williams' figures of 3.71 per cent in a series of the first 10,000 cases in the obstetrical service of Johns Hopkins Hospital. The figures above are among mature children.

From these figures we feel quite definitely that the scopolamine-morphine semianarcosis is in no way increasing fetal mortality; in fact, the figures actually show a diminution and this must be considered quite remarkable when one is reminded that the hardest labors in most instances have been conducted under this method. This also is the experience of Opitz at Freiberg.

Roosevelt Building.

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GWATHMEY'S RECTAL ANALGESIA
IN LABOR*

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One of the foremost factors today in the practice of obstetrics is the ability of the obstetrician to conduct his patient through the three stages of labor with as complete an obliteration of pain as is commensurate with safety to the mother and the babe. The medical profession as a whole has been prone to neglect this essential feature.

The rapidly increasing number of neurotic

* Read in the Symposium on Obstetrics at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

women, the by-product of our modern civilization, who are unable to tolerate the physical torture associated with childbirth, has forced the profession to take heed. The result is the inception of an era of obstetric analgesia which began some fifteen years ago.

The foremost pioneers of this era were Kroenig and Gauss, of Freiberg, Germany, who came to this country in 1914 and demonstrated their "Dammerschlaff," or "twilight sleep," in our principal medical centers, with the attendant publicity given it by the lay press and the magazines. It was due to this publicity that the subject of the relief of labor pain became a topic of general conversation rather than one quietly discussed within the confines of a boudoir.

Subsequently, a few men in each locality commenced using this form of analgesia, thereby satisfying the demand of their patients, with the result that they began encroaching upon the realms of the family physician, who was content to let nature do its work unaided, except for the few whiffs of ether or chloroform given as the head passed over the perineum.

Preceding this period, morphine was occasionally administered as an analgesic during the second stage, but not until after 1915 do we find a tendency to develop an analgesia which would protect the patient throughout the entire course of labor.

Since that time there has been an unbelievable improvement in these agents, due to a better appreciation of the pathological physiology of the body in general and the realization of the fact that the pregnant woman as a class is never so good a risk for prolonged anesthesia as the same woman in the non-pregnant condition, because of the varying degree of acidosis which invariably attends the pregnant state.

During the course of this symposium, several methods of the more recently developed analgesias in labor will be discussed, and it has fallen to my lot to discuss briefly the ether-oil rectal analgesia, or the synergistic method, as introduced to the medical profession by Dr. James T. Gwathmey, of the New York Lying-In Hospital, in 1923. With all due respect to the other methods which are being employed at present, this procedure of Gwathmey is probably destined to become the most universally accepted because of its extreme safety, simplicity, and adaptability, being as readily carried out in the home as in the hospital.

The fundamental principle of the Gwathmey method is based upon the synergistic action of various drugs to effect a form of analgesia

without producing anesthesia and without interfering with the normal course of uterine contractions. When properly carried out, it tends to shorten the course of labor by softening the cervix during the process of dilatation, and saves the strength of the patient for the stage of expulsion, although when it is commenced too early it tends to prolong the course rather than shorten it. At times it will even stop labor completely, but these cases are rare and often the pains for which relief has been sought have been false or premature. The patient should actually be in labor at induction of this method.

Before entering upon a discussion of the actual technic involved in administration, I want to stress a few salient points upon which success or failure may depend. Intelligent co-operation upon the part of the patient is a prerequisite. She is told of the advantages of the enema as to its safety, simplicity, and relief, and assured that she will not be allowed to suffer one pain that is not necessary during the conduct of her labor. It is well to impress her with the fact that if the enema fails to relieve her as we have suggested, we still have the general anesthetic to fall back upon. Furthermore, that, having been given the enema, it will not require much of the anesthetic to give her complete relief. We assure her that she will be absolutely unconscious at the time the babe is born. The advantage of this psychological preparation of the patient should not be underestimated.

Another fact worthy of mention is that there are a great many women, especially members of women's clubs or clinical auxiliaries, who are prone to exaggerate the advantages of or the objections to any new medical venture, being largely influenced by the personal views of their own physician or through unintelligent discussions at their meetings. Thus, we are often asked if the fetal mortality is greater where Gwathmey is used than otherwise; to which we can truthfully reply, that it is not.

There have been but two instances in approximately 300 labors wherein we have felt that the procedure has caused the death of the babe. In the first case a second dose of morphine was given late in the first stage of labor, just before complete dilatation. The patient, who was extremely hysterical, became profoundly anesthetized and delivered an asphyxiated babe. This is the only case in which we have used a subsequent dose of morphine, although its advantages, especially in protracted posteriors, have been stressed by several writers upon the subject.

The lesson to be learned from the second

case is of two-fold interest in that it exemplifies two features of faulty technic. The patient, a para three, had carried her pregnancy approximately two weeks past the expected date. The McDonald measurement was 39 centimeters. We elected to induce labor by the use of quinine and castor oil, to which she responded immediately, her primary pains coming every two or three minutes and lasting from one-half to a full minute. The labor was of a violent and precipitous nature and due to our over-anxiety to mitigate the pain the entire procedure was administered within the course of an hour. By this time the cervix was completely dilated and the pains continuous. Neither an anesthetist nor an intern was available at the moment so a student nurse was called upon to administer open ether. The babe was born spontaneously three minutes later so profoundly narcotized or anesthetized that resuscitation was impossible. In analyzing this case we feel definitely that too much quinine and ether were used within too short a period of time. Since then we have used Gwathmey in many cases in which labor had been induced, but we have used a smaller amount of quinine in the enema, usually ten grains, and have postponed its administration until the morphine and magnesium sulphate had produced a quieting effect.

The apparatus and drugs necessary in the administration of this method are very simple and may be found in the armamentarium of any physician. A 5 cc. hypodermic syringe with a needle long enough for intramuscular injection, a rectal tube with a glass connection, two feet of rubber tubing with a funnel and clamp, suffice. For the first phase of analgesia, tablets of morphine sulphate, $1/6$ gr. and $1/4$ grain, depending upon the size of the patient, and a few ampules of 50 per cent magnesium sulphate solution, are required. The preparation of the retention enema is likewise simple and it is preferable to have it prepared at the time of labor instead of using the stock or commercial preparations which cannot be altered to meet the requirements of the individual patient. The standard formula follows:

Quinine hydrobromate.....	Grs. xx
Alcohol.....	dr. ii
Ether.....	oz. iiss
Olive oil.....	qs. ad. oz. iv

The quinine is first dissolved in the alcohol to which is added the ether. This mixture is then poured slowly into a bottle containing the olive oil, thoroughly stirred and then strained through cotton into a flask or container.

METHOD OF ADMINISTRATION

When the patient is definitely in labor the usual soap-suds enema is given. This should be repeated if the return is not clear; and we have found it advisable to allow the patient to use a commode or toilet when returning this enema instead of the bed-pan. This feature will often avoid the loss or dilution of the rectal instillation, and should precede the ether enema by at least two hours.

With the cervix dilated the width of two or three fingers and the pains regular,—from three to five minutes and lasting from thirty to forty seconds,—the first hypodermic of morphine $1/6$ gr. or $1/4$ gr., dissolved in 2 cc. of 50 per cent magnesium sulphate solution, may be given. The best time for this injection is during an actual pain. As the morphine is not readily soluble in the magnesium sulphate solution, it should first be dissolved in sterile water, and this solution mixed in the syringe with the contents of one of the ampules. The site of the injection should be cleansed in the usual manner and the injection made deeply, at right angles to the skin, until the point of the needle has pierced the deeper structures. This prevents the formation of an abscess, which humiliates the physician quite as much as it annoys the patient. After this injection, the patient should be kept absolutely quiet. It has not been found necessary to darken the room and pack cotton in the ears of the patient, as some men suggest, but we do instruct the members of the family who insist upon remaining with the patient, to avoid talking to her. Usually within fifteen to thirty minutes she will relax and drop into a quiet drowsy state, wincing slightly or even moaning during a uterine contraction, but not actually suffering pain. There should be some one with her constantly,—a member of the family will suffice,—to see that she does not become restless and attempt to rise or fall from the bed.

One hour after this primary injection a second injection of magnesium sulphate is given, this time without morphine irrespective of whether the first has acted as a complete sedative or not. This may be repeated a second or even a third time, the object being to prolong the effect of the morphine.

ETHER INSTILLATION

The ether instillation is given from two to four hours after the primary hypodermic injection, the time depending upon the intensity of the sedation obtained by the morphine. The bottle containing the mixture of ether and

olive oil should be warmed to body temperature, then, with the patient on her left side and the buttocks raised at the edge of the bed, the tube is inserted.

Vaseline should be applied freely to the region of the anus so that if the ether is expelled there will be no resulting burn. She should be advised not to bear down but to breathe deeply with the mouth open; this will prevent expulsion of the solution. She should be told to tighten up the sphincter muscle as if to avoid expelling gas, which will induce reverse peristalsis and permit the fluid to run in more readily.

When it is evident that the oil and ether are being retained, a third intramuscular injection of 50 per cent magnesium sulphate solution is given for the purpose of prolonging the action of the ether. Should the effect of the first instillation wear off and the patient complain of pain, a second or even a third injection of four ounces may be given at intervals of two and one-half hours or more, but this is the exception. These subsequent enemas should always be accompanied by the hypodermic injection of magnesium sulphate; but they should never be administered until a rectal or vaginal examination has been made to determine the station of the babe. One should not be misled; particularly is this true when dealing with multiparae, by the quiet appearance of the patient, for although she is quiet, labor may be progressing rapidly and constant supervision is essential.

Morphine is essentially quieting and relieves the pain. The ether is distinctly analgesic and undoubtedly helps to dissolve the quinine, which has a direct effect upon the intensity of the uterine contractions. Absorption of the quinine from the rectum is evident from the fact that many patients speak of the tinnitus or buzzing in the ears. Recently a case under observation developed a typical quinine rash, even before delivery was completed. Small doses of adrenalin acted specifically in this instance, the rash disappearing within two hours. The olive oil prevents irritation of the rectum and allows slow, even evaporation of the ether at body temperature. The magnesium sulphate acts synergistically with both the ether and the morphine in producing analgesia and occasionally anesthesia, thereby prolonging definitely the action of each.

This procedure, if carried out as above described, will usually carry the patient through the first and second stages of labor to the point of actual delivery, with the maximum amount

of freedom from pain, conservation of energy for herself and babe, in addition to freeing her mind of the greatest mental hazard of pregnancy, namely, fear.

As to the anesthesia required at the time of delivery, it may be stated that fully 50 per cent of our patients need none, although we make it a practice to use a small amount of open ether or nitrous-oxide-oxygen at the time, frequently for the sole purpose of fulfilling our contract that the patient should be soundly asleep at the time of delivery. Chloroform is contraindicated and should never be used following oil-ether because of the narrow margin between this state of analgesia and complete anesthesia. Operative procedures always require supplementary anesthesia and while the amount usually needed is small it should be carefully administered.

Close adherence to this technic has given excellent relief in at least 85 per cent of our cases; failure in the remainder has been due to a faulty technic or to an idiosyncrasy in the reaction of the individual.

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ANESTHESIA AND ANALGESIA IN OBSTETRICS*

OTHER THAN BY GWATHMEY OR MORPHINE
SCOPOLAMINE METHODS

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The use of analgesia and anesthesia in labor is no longer controversial; it is an accepted and essential procedure. There are no religious organizations which rule against the relief of pain and, except when the individual desires to subject herself to full consciousness of the procedure, some method of pain relief providing satisfactory control of labor, should be employed.

I have been asked to present all methods other than morphine-scopolamine and the technic of Gwathmey. My presentation will of necessity be limited to a very brief discussion of methods, with a few remarks on those with which I have had experience.

As old as the history of medicine itself is the search for that thing which would relieve the suffering of disease and the pain attendant upon operative manipulation. The ancient Greeks possessed a plant, mandrake, of the

* Read in the Symposium on Obstetrics at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

same family as belladonna, from which they prepared a wine. Lucius Apulius, 160 A. D., says that "if a man has to have a limb mutilated, sawn or burnt, he may take half an ounce of mandragora wine, and whilst he sleeps the limb may be cut off without pain or sense."¹ Down through the years, various methods and medicines, hypnotism and witchery, have been employed in the relief of the pain of disease and of operations on men, but not until the work of Wells with nitrous oxide and Morton with ether in the middle of the 19th century is there any mention of the relief of the pain of women in labor. Then Sir James Y. Simpson, over the protest of the Scotch clergy, adopted ether in his obstetrical work (1846). Due to the offensive odor it left on his clothing and the effect it had on the patients he visited he began search for something less offensive. On November 4, 1847, he gave the first chloroform anesthesia² and from that date until November 15 he gave fifty chloroform anesthetics without any bad results, acquiring half of his first hundred cases in a remarkably short period of time.

The problem today is not so much the relief of pain as it is the study to develop a method of analgesia and anesthesia which will provide a satisfactorily controlled process of labor, or eutocia. It is the duty of the obstetrician to familiarize himself with ideas advanced and the progress in methods so that he may select that which will result best in the given case.

INHALATION ANESTHESIA

For many years chloroform enjoyed first rank in obstetrics and provided a satisfactory analgesia when administered with the oncoming contraction. It provides about the same degree of analgesia as nitrous oxide, its action is as rapid and complete consciousness returns as quickly. Williams⁴ as late as 1923 in his textbook calls it a most satisfactory anesthetic for the perineal stage or a late second stage, but in a personal communication a few days ago states, "that it is being used less and less on his service on account of the possible danger of late chloroform poisoning; that the danger is particularly great in certain toxemic cases in which the liver tends to be involved more or less primarily." The experimental work of C. H. Davis³ with chloroform, ether and nitrous oxide proves that chloroform is the most toxic, that there is a greater tendency to liver necrosis, that there is the narrowest margin of safety in the production of respiratory paralysis. He also proves that the continuous administration of chloroform produces necrosis of the liver in the newly born and a tendency

to hemorrhagic disease. While it is a cheap, easily administered and pleasing anesthetic for the second stage, it has been almost abandoned in favor of other methods. If used it should be limited in time to intermittent analgesia of the late second stage, and should never be given where toxemia is present or suspected.

Ether, used first in obstetrics also by Simpson, is much slower in its action than chloroform but it is far less dangerous. As an inhalation for analgesia it cannot be compared to chloroform. It, however, may be used in the home by lay assistants under the direction of the obstetrician with safety. Used with oil as rectal instillation by Gwathmey's technique it is one of the greatest additions to satisfactory labor control. Ether is the generally accepted safe anesthetic for delivery by instruments and particularly indispensable in the relaxation it gives for version.

Nitrous oxide was first used in obstetrics by Klikowitsch, of Petrograd, in 1880 on the recommendation of Paul Bert. Clifton Edgar, New York, in 1890, first brought it to the attention of American obstetricians. In 1909-1910 Webster, Davis, Guedel and others began the intensive study of its possibilities and since then it has been used extensively in analgesia of the first and second stages and in operative and instrumental deliveries. Among its many advantages are very slight toxicity, rapid action and ease of control, less postanesthetic nausea, stimulation of pains with consequent shortening of labor rather than depression and slowing, its stage of analgesia allowing the patient to cooperate and respond to instruction while suffering no pain, and it may be given over a long period of time. Davis reports a case where it was administered for fifteen hours, and it is not unusual in the experience of many to use it over periods of three to four hours. In some cases the baby on delivery is cyanotic, but increasing the amount of oxygen before severing the cord promptly corrects this condition. There are practically no dangers with nitrous oxide-oxygen and I employ it as a part of the method of relief in nearly every case.

Ethylene in its use is almost identical with nitrous-oxide-oxygen. It may be given with a higher percentage of oxygen. C. H. Davis⁵ by further experimental work has found that ethylene has less tendency to produce intrauterine asphyxia than nitrous-oxide, ether or chloroform. The expense is about the same. Our experience with it is limited to a very few cases as we do not have antistatic equipment. Levy and Allgeyer⁶ reported a series of cases with ethylene that showed an increased amount of postpartum hemorrhage. It is being ex-

tensively used in hospitals where preparation is made for the exact prevention of static, and further experience may lead us to abandon nitrous-oxide-oxygen in its favor. In our small experience it had no advantages over nitrous-oxide-oxygen. It should never be used without antistatic equipment.

INFILTRATION, SACRAL AND SPINAL ANESTHESIA

Gelhorn⁷ in 1913 recommended injection of the cervix or broad ligaments for the relief of the first stage pains, and has for some time used procaine injections into the levators and perineal body, stating that it makes the second stage easy and painless. King,⁸ in 1916, blocked the pudic nerve on each side of the perineum for second stage pains. More recently, David Rose⁹ by abdominal infiltration, as he calls it, injecting the nerve endings in the abdominal skin through which the pain of contraction is referred, controls the pain of the first stage with the exception of slight backache. He follows with perineal injections for the second stage. His series of cases is small and we shall watch with interest his further communications. The objection to these methods, if efficient, is that injections through an unsterile vaginal wall would be uncertain.

Caudal anesthesia is a much nicer method and with the use of morphine sedation for first stage pains may develop into a satisfactory method for wide application. Pickles and Jones¹⁰ report satisfactory results in the control of second stage pains. They feel it may be used in cases where inhalation anesthesia is contraindicated. Oldham¹¹ began using sacral anesthesia in 1921 and has had much experience with various solutions. He is enthusiastic in his recommendations. His best formula for prolonged action,—negative action on labor pains, no ill effects on patient,—is 30 cc. of 2 per cent procaine and 6 cc. of 3 per cent solution quinine and urea. His technic is fairly simple and he feels it can be safely administered in the home. He reports successful anesthesia in 85 to 90 per cent.

In the past ten years, following a period of disuse due to failures and mortality, spinal anesthesia has again gained recognition in general surgery. More recently obstetrics has called upon it. If one reads the report by Pitkin and McCormack¹² on controllable spinal anesthesia and their two or three pages of advantages attendant on its administration in all the abnormalities of labor, one is almost converted to its routine use. From our experience in pelvic and perineal surgery under

spinal anesthesia and our observation of the profound relaxation secured by this method, it is easy to accept all of their statements.

It is certain that many of the disadvantages of spinal and caudal anesthesia have been disposed of by the use of adrenalin and ephedrine to prevent the drop in blood pressure and the use of barbituric acid derivatives to relieve any untoward effect of the cocaine group. The work of Ockerblad and Dillon¹³ illustrates the action in the use of ephedrine. Isenberger¹⁴ reports some interesting and extremely valuable work on the prevention and treatment of untoward effects of the cocaine group. With these advantages, the maternity hospital should be prepared to use caudal or spinal anesthesia, at least in cases where inhalation anesthesia is contraindicated.

SUBCUTANEOUS AND INTRAVENOUS ANALGESIA AND ANESTHESIA

The use of morphine-scopolamine has been covered by Dr. Krebs in this symposium, but mention must be made of the report of Bertha Van Hoosen¹⁵ of the use of scopolamine anesthesia in the second stage. She uses scopolamine alone and gives it at any time in the second stage. In studying her stillbirths she reports 88 per cent not possibly attributable to the drug. If further reports lead us to like conclusions we should enjoy its free use, for our observation of morphine-scopolamine in occasional cases of prolonged labor and in excitable patients has given us a profound respect for its sedative power.

Recently the use of barbituric acid derivatives intravenously has been recommended. Cerne first used them in labor. Much work with them has been done in this country by Zervas and McCallum.¹⁶ They have given small doses intravenously to thirty cases of labor with encouraging results, but believe that anesthetic doses stop uterine contractions. They report that it is much more effective in control of convulsions of eclampsia than morphine. Fjelde¹⁷ has reported one hundred cases of labor in which he used somnifen and is enthusiastic in his comments. He reports that labor is accelerated, patients respond to suggestion and labor as directed; further, that it may be given in any stage of labor without fear for mother or child, and that it is equally efficacious in a short labor as in a long one due to its rapid action. He has maintained anesthesia as long as twenty-two hours; hemorrhage is not increased as the reflexes are not abolished, and he has had no complications which might deter him from its further use. He has been using repeated intravenous in-

jections, but in later experience by oral administration believes he gets approximately the same results. Professor C. J. Gauss,¹⁸ Wurzburg Clinic, fears repeated intravenous use of this group, fortifying it with scopolamine where labor is long, but using nitrous-oxide-oxygen where labor is short. Recent animal experimental work, as yet unpublished, by R. M. Isenberger and F. I. Wilson, of Kansas University, proves that amytal, a less toxic barbituric acid derivative, used with morphine, is a most pleasing anesthetic. Blood pressure is very slightly affected, carbon dioxide sensitivity is at a much higher level, and the animal is much more sensitive to stimulation and artificial respiration.

With the use of powerful intravenous medicine must come the antidote for overaction and ephedrine sulphate 25 to 50 mg. and caffeine sodium benzoate 1 gm. injected intramuscularly every three hours for three doses, is advanced as effective. Fjelde uses caffeine sodium benzoate any time after labor if it is desired to awaken the patient.

ANALGESIA AND ANESTHESIA IN THE HOME

Though the use of chloroform is simple and its analgesia extremely satisfactory increasing evidence and authoritative opinion on its dangers should lead us to discard it. Ether by the open drop method may be sufficient for multiparae following a properly timed hypodermic of morphine with magnesium sulphate, but for primiparae the full Gwathmey technic I believe is ideal. The technic is easily mastered and gives most gratifying results. Somewhat closer observation of the patient and the course of cervical dilatation and descent, by rectal examination, is required because the character of suffering is no longer an indication of the progress of labor. The finer points in technic have been covered in Dr. White's paper.

ANALGESIA AND ANESTHESIA IN HOSPITAL

Our technic in the hospital is a combination of Gwathmey with nitrous-oxide-oxygen. In cases where there is slow onset of labor, irregular pains, and a cervix which promises to efface slowly, the preliminary morphine and magnesium sulphate injection may be preceded by chloral hydrate and sodium bromide by rectum. In the usual case the Gwathmey technic is followed. If the effect after the ether-oil enema is subsiding and the cervix, by rectal, does not appear to be nearing complete dilatation another ether-oil enema is given. In the usual case however the cervix is completely dilated and the administration of

nitrous-oxide-oxygen is instituted. Normal delivery is usually accomplished under nitrous-oxide-oxygen. For instrumental delivery ether vapor is added to the nitrous-oxide-oxygen.

CONCLUSIONS

(1) The parturient woman is entitled to that degree of eutocia free from pain of which her particular physiology is capable.

(2) The use of chloroform has been a great boon to all womankind but investigation has proven its dangers and other methods should replace it in the home and hospital.

(3) It is the duty of every physician handling the parturient to examine present methods and study progress in anesthesia and analgesia so that he may select and apply that method which will obtain best results in the individual case.

1808 Federal Reserve Building.

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POSTPARTUM AND POSTNATAL CARE*

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It requires no great stretch of imagination to conceive that postpartum care should begin with the birth of the prospective mother, inasmuch as the acute infections, poor nutrition and improper physical development in childhood have a bearing upon the type of delivery and reaction to the shock of becoming a mother she will exhibit. That the type of prenatal care and of delivery have a bearing upon the postpartum and postnatal care is apparent. For example, the undetected nephritic and preeclamptic conditions, as well as hasty unwarranted obstetric operations or accidents of pregnancy and delivery, will modify the after-care that is necessary for the

* Read in the Symposium on Obstetrics at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

new mother and her baby. Local conditions will affect to a certain extent the degree of morbidity and the chances of mortality. There is hardly an excuse for lack of prenatal care and, in most cases, a strict policy of non-interference during delivery. If interference becomes necessary, there is every reason to use the strict aseptic precautions observed in good surgery. In caring for the mother in the home, where most of the deliveries occur, the after-care of the mother and baby will rest with some member of the family or a practical nurse. In these cases the instructions must be few and simple if they are to be carried out. It is surprising how quickly these untrained attendants will adopt the few aseptic rules necessary if given concise and simple instructions.

I will attempt to describe the technic we have carried out in the last 600 hospital cases. While the methods may not have been ideal in some particulars, the results have seemed fairly satisfactory. The patient is protected during labor from everything that tends to produce exhaustion, hemorrhage or infection, which makes postpartum care more simple, as complications are less likely to arise.

Immediately after delivery of the placenta an ampul of 1 cc. of pituitrin is given intramuscularly followed by an ampul of aseptic ergot or gynergen. One-half dram of ergot is given daily by mouth for three days and is continued longer in the presence of unusual bleeding, or if involution is arrested. A constant watch is kept on the uterus for any signs of hemorrhage until the patient is fully conscious. Any symptoms of postpartum eclampsia are noted and immediate treatment instituted. The vulva is carefully cleansed and repainted with a solution containing 5 per cent mercurochrome, 10 per cent acetone and 50 per cent alcohol. A towel is pinned over the perineal region with skin clips to protect the vaginal orifice from fecal contamination. A careful inspection is made for any possible lacerations of the cervix, vaginal vault, or perineum. If any are found they are carefully repaired anatomically; by this I mean the coaptation of like tissues layer by layer. Lacerations of the vaginal walls and perineum are made more accessible by packing the vagina with a small laparotomy sponge saturated with the mercurochrome solution. The sponge is removed at the end of the operation and accounted for as in abdominal work. After the removal of the sponge, one ounce of the mercurochrome solution is instilled into the vagina.

I have found that well timed episiotomies

with proper repair give less trouble than allowing the patient to be lacerated. The indications in the past for immediate cervical repair have been to check hemorrhage, but all deep lacerations of the cervix are repaired after smoothing up the edges of the lacerations with the scissors and being sure to obtain a muscle approximation. The muscle layer of the cervix retracts leaving the mucosa overlapping the muscle which if united without including muscle will fail to unite. In cases where there has been prolonged or difficult labor with lacerations or episiotomy, inspections are made before delivery of the placenta, and the deeper sutures placed so as to be tied with repair of the cervix after delivery of the placenta. The after-care of the stitches consists in sterile pitcher douches, sterile pads as often as soiled and after each defecation and urination. The stitches are painted once daily with mercurochrome, acetone and alcohol solution, and a 70 per cent alcohol pack continuously applied and changed with each vaginal pad until fully healed. If by chance the stitches break down, which is rare with this treatment, a 25 per cent turpentine solution in castor oil is substituted for the alcohol.

A snug fitting abdominal binder extending from the costal margin to below the trochanters is applied soon after delivery and kept on for three or four days. On return to bed the patient is given a hypodermic of 1/6 of morphine before she awakens from the anesthetic. This insures a much needed rest and lessens the tendency to postpartum hemorrhage.

After the patient is fully awake and in good condition, the head of the bed is elevated 8 or 10 inches in order to favor drainage and kept up for 5 days, and the patient is encouraged to lie on her face for a few minutes several times a day throughout the lying-in period. She is allowed a back rest for meals as soon as she is able and desires, and may be allowed the use of the commode if there are no stitches. Theobald wisely states that, "Sitting up during the puerperium may prevent lying down in a coffin."

The presence of a laceration, and after episiotomy, is a contraindication of early sitting up on account of pain and danger of opening of the wound.

The bladder is emptied within twelve hours after delivery, by a catheter if necessary under strict aseptic precautions; it is emptied every eight hours thereafter. Personally, I fear clean catheterization much less than the bladder stasis that results from over-distension.

tion, stasis being a forerunner of cystitis. However, we try all the simpler methods before using a catheter.

The bowels are moved on the second day by enema and repeated on alternate days if necessary. If lacerations are of the second degree or a deep episiotomy is present, the bowels are not moved until the fifth day and then by giving the patient in the morning and in the evening of the fourth, two ounces of mineral oil by mouth, and in the evening of the fourth day a rectal injection of 6 ounces of mineral oil which is retained over night, if possible. An enema is used on the morning of the fifth day if the oil fails to act. In third degree lacerations, the same method is observed but it is deferred until the ninth day. The patient is instructed not to strain during defecation; it is only occasionally and for special reasons that castor oil or salines are ordered.

The breasts soon after delivery are gently scrubbed with soap and water followed by boric acid solution, dried, and up to six months ago, sterile gauze or perforated aluminum shields were kept on nipples continuously, except while the baby nursed. Before and after nursing, the nipples were washed with boric acid solution. With this method we had many cracked and macerated nipples which required treatment. The last six months covering nearly 100 cases, we have, after washing with soap and water and boric solution and blotting dry, applied sterile ointment of equal parts of bismuth subnitrate and castor oil which is covered with sterilized oiled silk or oiled paper and a binder applied pulling the breasts well upon the chest and kept in this position. The baby is allowed to nurse without removing the ointment, the breasts cleansed after each nursing and ointment reapplied. This, to my mind, serves four purposes: it helps keep the nipple supple, prevents maceration and friction of the nipple by binder and clothing, and acts as a slight laxative to the baby, which is recommended by DeLee and others. If the laxative action is too free, the excess ointment is removed with sterile cotton or gauze. With this method we have had no cracked nipples.

The diet for the mother is rather liberal after the first day, except in the presence of second or third degree lacerations when liquids are kept up until the bowels move.

Visitors, except close members of the family, are excluded, to prevent the spread of acute infections and prevent to a certain extent the nervous tension of the mother. The mother is allowed to be out of bed and walk around when the uterus is no longer palpable above

the pubes and all bleeding has subsided. Those who have suffered hemorrhage, have deep lacerations or infection are kept in bed longer. The patient is examined on the 18th or 20th day for indications of subinvolution. Continued bloody discharge usually means arrested involution. They are instructed to lie down at least two or three hours daily for six or eight weeks, and when tired. At the end of one month, if all has gone well, they are allowed to go up and down stairs, take tub baths and short automobile rides, which must be followed by knee chest posture.

Beginning with the fifth day a simple graduated exercise is ordered, at first simple arm and leg movements; after the tenth day, the sitting up exercises which strengthen the abdominal and back muscles, knee chest positions to favor reposition of uterus, and about the eighteenth day, walking on hands and feet for a few minutes daily. The exercises are kept up for six weeks, when the patient is instructed to return to the office for physical and pelvic examinations. If there is subinvolution or displacement of the uterus, she is instructed to continue hot sterile douches, which are ordered daily after the fourteenth day, and the exercises, and to return in one month. If a retroversion is present at this time, the uterus is replaced and a proper fitting pessary is inserted. Should the cervix be eroded or unhealed, the electric cautery is used. The patient is instructed to return at about two month intervals until the baby is ten or twelve months old. No patient is finally dismissed until she is in as good physical condition as before pregnancy. None is left anatomically perfect.

Sleep is absolutely essential during the lying-in period. As before stated, it is routine to give my patients $1/6$ grain of morphine on returning from the delivery room and later if necessary they are given a sleep producing drug, such as veronal, luminal, etc.

The pulse and temperature of every patient are taken before delivery; after delivery they are taken every six hours. A temperature of 100 on any two consecutive days with a pulse of over 90 is considered an infection due to childbirth until it is proved otherwise.

Visits must be made daily, if possible, for the first ten days; in homes, surely on the first, third, fifth, seventh and tenth days at least, noting at each visit the height of the fundus, the presence of tenderness over the lower abdomen, the condition of the breasts, the lochia and the stitches and the temperature of the baby, state of nutrition, condition of the cord and eyes, also noting any unusual nervous

manifestations or bleeding. After-pains are controlled by aspirin and are surely lessened by urging the patient to sit up early, and elevation of head of bed. The daily sponge bath for the mother is essential and a tub bath is allowed at the end of the first month.

The incidence of morbidity was apparently lowered by this method, allowing 10 per cent morbidity as the standard, which is rather arbitrary as reliable statistics are meager and uncertain. DeLee quotes 10 per cent (29,000 cases), Polak 9.3 per cent, Bumm an average of about 10 per cent. A temperature of 100 on two consecutive days, except the first 24 hours, was considered as puerperal infection until proved different. There were 56 cases in this series with a temperature of over 100 on two consecutive days, 18 of the cases were divided as follows: 4 tonsillitis, 6 pyelitis, 6 abdominal sections who had no vaginal examination, 1 pneumonia, 1 mastitis. The morbidity for the whole was 9.3 per cent; after deducting the conditions strictly nonpuerperal left a corrected morbidity of about 6.3 per cent. No death from infection. There were three deaths in the series, two sections and one from cerebral embolism.

THE BABY

After severing the cord which is firmly tied one inch from the abdomen, the baby immediately has instilled into each eye one per cent silver nitrate solution. It is afterwards cleansed with sterile olive oil, the cord sponged with alcohol and a sterile dressing applied; this is changed only if soiled or moist and alcohol reapplied with each dressing. The baby is given an oil rub daily and not until the cord is off and fully healed is it allowed a full bath. It is put to the breast at the end of eight hours after delivery and is allowed to nurse for three minutes every four hours until lactation is established, and is given eight to twelve ounces of water daily. After lactation is established, it is allowed to nurse as long as it swallows. The four hour schedule is kept up for all full term babies; if it fails to show proper weight gain it is weighed before and after each nursing and if the breast milk seems inadequate a proper formula is supplied.

The temperature of the nursery should be about 70 for normal babies; prematures require extra heat which is supplied by hot water bottles or by being segregated into a different room from the ordinary nursery where the temperature level is higher,—90 to 95 F. The baby should be weighed daily until it is one month old; if it shows proper weight gain it is weighed weekly until it is one year old.

Premature babies may require special technique in feeding. Many are unable to nurse on account of weakness and will require to be fed by the tube. I have seen no indications to feed these babies by nasal tube and to my mind it is not superior to introducing the tube through the mouth. It is our practice with the babies after long labors, or hard, difficult labors, to give them intramuscularly injections of 20 cc. of mother's blood to lessen the tendency to bleeding. If the baby is asphyxiated, no violent efforts at resuscitation need be made; simple cleansing of the mucus from mouth and throat, suspension by feet, and slight friction to the lateral chest walls will usually suffice to resuscitate them. For clearing the air passages of mucus, suspension by the feet is used and a dental chip syringe covered with small section of rubber catheter which projects slightly beyond the end of the metal portion, for aspiration.

The binder for the baby is removed as soon as the cord is off and healed. It is recommended that the clothing for the baby should be light and warm; silk and wool for the winter and cotton during the hot season for the average baby. I frequently tell mothers that the baby suffers from heat and cold more quickly than they do and to govern the baby's dress accordingly, and that overheating is more harmful perhaps than being too cool.

No one should be allowed to handle the baby or be near the baby who is suffering from any acute infections. I teach the mothers to understand that the baby is not a toy, but a responsibility.

CONCLUSIONS

With proper antepartum, partum and postpartum care the incidence of morbidity and mortality for mother and baby will be reduced to the irreducible minimum. This has not yet been reached but it is still the goal for the practitioner who has the responsibility of two lives with each maternity patient.

Woodruff Building.

DISCUSSION

DR. URBAN J. BUSIEK, Springfield: I want to discuss particularly Dr. Krebs' paper because I am more familiar with that type of anesthesia than with the others. The low mortality in these cases is interesting. While I suppose no one claims that this is due to what he uses so much as to the fact that the patients are very closely observed, I think that this type of anesthesia has distinct advantages. One of these is the fact that the mothers immediately after delivery of babies by twilight sleep seem to be in much better shape than the mothers who were not given some method of narcosis. They do not have that ill, exhausted look seen in patients not narcotized. However, the main thing to me is the effect on the children. I have not observed

many cases in the delivery room because I am not there, but never have I found a baby suffering any ill effects from this method.

With respect to all three of the papers, I think that to most of us the striking thing is the progress obstetricians have made in controlling the pain of childbirth, and that several methods have been developed to the point of being perfectly safe. It might be interesting to know what effect all this has on the lay mind. The pediatrician will hear some things that the obstetrician will not. Ten years ago when I first started practicing, when babies were brought in with some vague disturbance early in life, if some procedure had been used to relieve pain at childbirth the lay mind blamed the procedure. Nowadays, when we see sick babies early in life the lay mind does not blame the obstetrician who uses such methods. Indeed, he may be criticized if he has not used some such method.

DR. TRESTON R. AYARS, St. Louis: I have but one thing to say, and that is in regard to the morphine-scopolamine method. I want to sound a warning about giving morphine. A good many years ago when HMC came out I thought we had something to make childbirth painless. I used it on several cases and had several rather blue babies, so discarded it. Since then I have been using the morphine-scopolamine method and think it is fine. However, the warning I would utter is, do not give morphine late in the first stage of labor. That was mentioned, but I do not believe it was impressed upon you as it should have been. If it is given after the cervix is dilated to the amount of four fingers you are liable to have an asphyxiated baby.

DR. OTTO KREBS, closing: I have nothing to add, but I will try to answer Dr. White's question. We have a series of cases where we used ether oil at the Maternity Hospital that was reported about two weeks ago at the St. Louis Medical Society in an obstetrical symposium similar to this. Dr. Myron Davis reported on behalf of the St. Louis Maternity Hospital. This series included mostly ward cases and several cases where members of the visiting staff used the Gwathmey method in private work. As to the effect and whether the patient liked one method (twilight or quinine-ether-oil) better than the other, I cannot say, because so many of the patients who have had twilight come back again through the ward service and usually you cannot reason with these patients—they want it again. Especially if they had it for the first labor and then missed having it at the second delivery, they want it subsequently, and inasmuch as a good many patients come through this clinic just for that reason, we have not insisted on quinine-ether-oil administration. I think it would be a good thing to try out, but we know our results are satisfactory with morphine-hyoscine and in our opinion other methods have not yet been able to replace it.

Chloroform anesthesia in obstetrics has been condemned by the other essayists here, and I think the condemnation falls largely upon us who use it freely. I have to say in defense of our use of it that we realize it is a dangerous anesthetic, that the zone of safety is narrow, but we feel that most people give chloroform incorrectly. In the first place, chloroform must be fresh. We refuse to use a bottle that has been opened more than a half hour to an hour. I want the bottle opened now,—when I use it. As a matter of fact, if chloroform comes in contact with air and moisture it forms poisonous chemicals,—I think phosgene is one of them. In

the administration of chloroform we never give it with a wet towel over the patient's face, but give it on a thin mask without a towel around the mouth or face; simply a dry towel over the eyes and the face covered with cold cream. We realize that in eclampsia there is a very definite liver lesion; we realize that in some of the other toxemias of pregnancy there is a definite liver lesion, and we know that in chloroform poisoning there is a definite liver lesion. For that reason we do not use chloroform in any of the toxemias; neither do we use it in cases where the patient has not a perfectly functioning heart. Our technic in the use of chloroform for delivery, starting from the point where the hyoscine-morphine leaves off, is this: The patient is ready for delivery. In the primiparous patient we bring her to the edge of the table, she is prepared in whatever manner the attendant prescribes, and chloroform anesthesia is begun. We use very little chloroform and insist on it being given drop by drop so that the anesthetist can count them. If it is a running drop it is too fast. Given drop by drop there is no chloroform wasted,—the patient utilizes all she needs. When the patient is well under, iron out the soft parts manually with soap as a lubricant and do a perineal forceps with the head on the pelvic floor, with crowning to the approximate amount of 4 cm. An episiotomy incision is made, usually of the right mediolateral type. After the child is delivered, chloroform anesthesia is suspended and ether is given during repair.

The point about chloroform and its danger to the fetus, I do not think, experimentally holds good as far as poisoning is concerned, because Graham has shown that in pups the glycogen in the liver is very high, and he was unable to poison such animals with chloroform unless starved as a preliminary measure.

Analgesia, anesthesia, seminarcois and related phases are interesting in obstetrical work. I cannot add anything further, but I do feel that we should not rely on any one way to keep women comfortable during labor. I think every one who does obstetrics should have several methods available, adaptable to the particular person and the labor and related circumstances in question.

UTERINE RETRODISPLACEMENT

AND ITS INCIDENT PATHOLOGY*

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This paper embraces a discussion of the pathology incident to backward or downward uterine displacement only. It is intended to serve as a brief resumé of the anatomical relations between the uterus and its appendages, and an attempt is made to solve the origin and treatment of some of the pathology associated with such conditions. Because we are so frequently confronted with the persistent and agonizing symptoms of such disorders, uterine retrodisplacement should be vitally important to the general practitioner since usually it is he who first sees these cases.

Let us review for a moment the normal posi-

* Read at the 72nd Annual Meeting, Missouri State Medical Association, Springfield, May 13-16, 1929.

tion, relations and blood supply of the pelvic viscera. The normal uterus in the erect posture occupies an almost horizontal position in the pelvis, the fundus lying forward and in some cases resting against the anterior abdominal wall, the body of the uterus extending backward and downward to the cervix which dips into the cul-de-sac of the vagina at an obtuse angle. Anteriorly, the bladder peritoneum is reflected upon the body of the uterus while the rectum is in intimate contact with it posteriorly. It can then readily be seen that the anterior-posterior position of the uterus is necessarily a very flexible one, due to the constant filling and emptying of the bladder in front and the rectum behind. This variation in position requires the supporting elements of the uterus likewise to be flexible, an anatomical condition which could easily predispose toward flexion of the uterus beyond normal limits.

Aside from the general peritoneal anchorage of the uterus in the pelvis, the supporting ligaments are six in number. The two round ligaments have their origins in the cornua of the uterus just anterior to the fallopian tubes and extend outward, forward and upward where they pass through the internal inguinal ring to end in the labia majora. These are the principal supporting structures in holding the uterus in an upright position. The two broad ligaments, which are no more than peritoneal folds, arise from the lateral surfaces of the body of the uterus and extend outward to the parietal peritoneum of the sides of the pelvis. They tend to maintain the uterus in a central position in the pelvis and also serve as protective sheaths for the uterine vessels and supports for the fallopian tubes and ovaries. The sacro-uterine ligaments are merely anchors to the pelvic sling.

The blood supply, as we shall find later, plays a very important part in this discussion and is by way of the ovarian and uterine arteries. The uterine arteries arise from the internal iliac arteries, pass through the lower folds of the broad ligaments and enter the uterus at about the level of the internal os. Here they are reflected upward at right angles and course the sides of the uterus giving off numerous branches, to anastomose finally with the ovarian arteries above. The ovarian arteries, which supply not only the upper part of the uterus but also the broad ligaments and their appendages, arise directly from the abdominal aorta just above its bifurcation, range downward and after entering the pelvis turn medially and are conducted to the uterus through the upper folds of the broad ligaments. The returning veins with their numerous anastomoses and plexuses occupy a very large

part of the broad ligaments and unite to form large veins that empty into the vena cava on the left side and the renal vein on the right. These veins are analogous to the spermatic veins in the male and are just as prone to varicosities as are the pampiniform plexuses of the spermatic cord. This may be explained, partly at least, by the prevalence of numerous valves within these veins and by their particularly tortuous course. The uterus and its appendages being supplied by both the uterine and ovarian arteries are therefore very vascular organs but with a very tortuous and consequently hazardous venous return system. However, as long as the uterus and the broad ligaments maintain their normal position and relationship the integrity of the circulation will remain unimpaired, barring of course some extraneous influence, such as thrombosis or embolus.

Among the causative factors of backward and downward displacement of the uterus, the following may be mentioned: (1) Congenital failure of the uterus to assume its proper level and position at puberty; (2) lacerations of the pelvic floor and imperfect involution following childbirth; (3) external forces, such as injuries, and (4) adhesions following pelvic inflammation.

The symptom-complex of backward and downward displacement is likely to manifest itself by backache and a feeling of pelvic pressure or weight, especially when the patient has been on her feet for some time; menstrual disorders; headache, especially in relation to the menstrual cycle; pelvic pain, constipation, frequent micturition, leg-ache, painful sexual intercourse, sterility, a general increased irritability of the nervous system.

On abdominal palpation we usually fail to find the fundus of the uterus in its normal position; frequently we can elicit tenderness in the region of the broad ligaments. Vaginal examination reveals the cervix more or less prolapsed into the vagina, the long axis parallel to that of the vagina and in extreme cases even pointing upwards and pushing into the bladder. With bimanual examination the fundus is often found lying in the hollow of the sacrum, pushing downward upon the rectum, and both broad ligaments are thickened and tender. Occasionally we can palpate a prolapsed ovary behind the uterus. In nearly all cases there is a tendency for the uterus to be enlarged and situated lower in the pelvis than normally.

At operation, examination of the pelvic viscera usually discloses a satisfactory explanation of most of the symptoms and physical findings. The uterus is deep in the pelvis and covered with intestines which by their pressure add to the displacement. Upon bringing the

fundus into view it is found to be enlarged, of a purplish mottled color, the surface somewhat irregular and dimpled, very suggestive of vascular engorgement. Further evidence that this is vascular engorgement is disclosed by holding the uterus in its normal position for a few minutes when its size will noticeably decrease and its color change to the characteristic normal pink. The broad ligaments and the fallopian tubes are congested and dark in color and although they do not regain their normal size and color as readily as does the uterus, by the time the abdomen is ready to be closed there can be detected a noticeable change in them. One or both ovaries may have a heavy, thick and fibrous tunica and may be the site of cystic degeneration, often carrying with them numerous cysts of the parovarium. Intestinal adhesions to the broad ligaments, especially adhesions of the sigmoid flexure to the left broad ligament, are common and in some cases so dense that they require sharp dissection. One of the most important findings which seems to be quite constant, is the extensive varicose condition of the pampiniform plexus of the broad ligament.

Now let us see if the pathology found in the pelvis is in anywise explanatory of the symptoms and physical findings. I believe the varicosities in the broad ligaments furnish a basis upon which we can explain the entire pathological syndrome. In uterine retrodisplacement we have severe torsion of the broad ligaments with a consequent kinking of the veins within the ligaments. The arteries, due to their more rigid walls, resist this torsion better than do the veins and permit a free flow of blood into the pelvic viscera. Thus there is a constant and marked congestion of these organs due to constriction of the veins by torsion of the broad ligaments and to the varicosities which result from this condition later on. This congestion no doubt continues as long as the uterus lies in an abnormal position and in time is capable of producing marked interstitial changes in the uterus, ovaries and fallopian tubes. Such a prolonged congestion may explain the thickening and fibrosis of the tunica albuginea of the ovaries, resulting in cystic degeneration and failure of ovulation with consequent sterility. It could, I believe, satisfactorily explain the feeling of pelvic weight and pressure produced by the weight of the engorged and prolapsed uterus. Backache could be caused by the weight of the womb upon the hypogastric nerve plexus which communicates with the second, third and fourth sacral nerves. The general vascular engorgement, if continued for a time could produce sufficient hyperplastic exudate to cause ad-

hesions. The general nervous irritability is an expression of uterine changes such as we see at puberty, in menstruation, pregnancy and the menopause, while the headaches and menstrual disorders could, at least partly, be attributed to changes within the ovaries. In short, the basis of the pathological changes in these organs appears to be a question of vascular engorgement or passive congestion with subsequent interstitial changes.

The treatment is self evident,—restoration of the uterus to its normal position with the resumption of normal circulation. This relieves the congestion of the organs and in most cases the patient will be relieved of her symptoms except where there has been permanent damage to some organ. It is often found necessary to remove one ovary and sometimes to perform complete castration. At this point I would like to say that in some cases, especially in young women, the judgment of the surgeon is sorely tried. No one wants to remove both ovaries and most of us are conservative on this question. Yet many times we have compromised by removing the more damaged of the two ovaries only to have the patient return in a few months or a year complaining of pain and distress from the remaining ovary. So where we find degeneration of both ovaries we have on one hand the spectacle of an early and stormy menopause and on the other, a patient not entirely relieved of her symptoms. Removal of cysts alone and other plastic work upon the ovary have proven of very little benefit in my hands.

As to the kind of treatment, there has been in my experience but one successful method of completely and permanently restoring the uterus to its normal position and I find it to be one of the most successful and gratifying operations both to the surgeon and to the patient. This procedure is that of shortening the round ligaments through abdominal section and at the same time freeing of any existing adhesions and removal of any organs or parts of organs which show permanent degeneration. Other methods, such as vaginal packs, pessaries and diathermy, may serve well as palliative measures and might afford permanent relief in some early cases, but these methods have been far from satisfactory in my hands.

The round ligaments, which are the natural supports of the uterus upwards and anteriorly, are shortened by reflecting them out through the internal inguinal rings and upwards through small slits in the fascia just lateral to the incision where they are anchored to the fascia. With this method the distal portions of the ligaments which are the more friable are used leaving the stronger proximal portions

to support the uterus. Furthermore, there are no loops left in the pelvis to produce intestinal strangulation.

This operation is particularly gratifying because not only has there been a visible change in the pelvic viscera long before the abdomen has been closed, but especially because the patient will as a rule within a few days and often before she is out of bed, tell you that she feels like a new person and has an entirely new outlook upon life.

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THE VIEWPOINT OF THE OBSTETRICIAN*

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ST. LOUIS

The science of obstetrics differs from other branches of medicine in that the study of history seems essential to its proper understanding. The operation of version, for example, is today very similar to the same operation as performed by Paré or even by the Romans in the first and second centuries. Why then is it advisable to study the operation as performed by the ancients and by the great Paré? Because a peculiar state of mind must have preceded the desperate determination to turn the fetus about in the uterus and thus make delivery possible. This peculiar state of mind must have preceded every important discovery in obstetrics and, briefly, must have been about as follows: "An easier and simpler way to do these things will some day be known. We seem to be on the verge of some important discovery, and if I only work hard enough maybe I can help clarify the situation in my own lifetime."

Now let us attempt to understand the state of mind that must have preceded the first plan to deliver the head by means of obstetrical forceps. It must have been something like this:

Labor was at an absolute standstill, the occiput possibly in sight, the woman exhausted. The external genitalia were very edematous. Not only were this woman and her relatives demanding help but probably every woman who lived within a radius of two blocks was demanding action of some kind. Chamberlain had every reason to believe that the child was alive, although in those days the fetal heart sounds had not been heard. He decided, nevertheless, to attempt helping out the head with a spoon-like instrument that he had devised—the

single-bladed obstetrical forceps—instead of destroying the child and bringing it out in small pieces as had formerly been done,—and with the birth of that child one of the greatest blessings to womankind was also born.

Smellie, who lived a long time before Semmelweis, made his contributions to the science of obstetrics in an entirely different frame of mind. His was the method of today. After mature deliberation and thought he tried out his ideas on the manikin. Not until he had proven to himself that his ideas were correct did he pass them on to his students. Here we have, probably for the first time in obstetrics, the cold scientific, calculating manner of thought that has meant so much to modern medicine. Unless you can understand Smellie's way of working you can hardly appreciate his contributions to our science.

Tarnier is not entitled to all the credit for the invention of the traction forceps, Simpson and others having contributed. The model perfected by Tarnier outlived all the others and he seems to be entitled to the credit for the idea. The traction forceps was devised for use while the fetal head was very high and the sagittal suture in the transverse position. The traction forceps however has been almost entirely abandoned now because of the terrible injuries which they inflicted to both mother and child. But the idea was good, even brilliant at the time. Tarnier's problem was about as follows: Labor at a standstill with the head so high and so turned that it could not be grasped by the ordinary forceps. Even if the old forceps had been applied and traction made in the manner that was understood at that time the pull would have been in the wrong direction. Instead of making traction in the axis of the pelvis, the pull would have been in the direction of the pubic bone itself. Tarnier is said to have made more than a hundred models before he had what he wanted.

Asepsis and antisepsis as they are practiced in obstetrics today can hardly be properly comprehended without an understanding of Semmelweis and his time. Semmelweis was assistant in the Vienna Maternity Hospital in the '40's. This position gave him a little more authority than a senior intern has in one of our hospitals today. The death rate from puerperal fever in this and other maternity hospitals was so high that it became necessary at times to close one of them because of public indignation. This mortality rate existed only in the ma-

* Read before the Marion County Medical Society, Hannibal, April 5, 1929.

ternity hospitals and not in the homes in the immediate vicinity. These homes were almost free from infection, although deliveries were made in them in apparently the same manner that was practiced in the hospitals. Unless you can imagine the state of mind of Semmelweis, confronted with this shocking problem, you cannot appreciate the beauties of asepsis and antisepsis as they apply to obstetrics today.

Let us now attempt to understand the state of mind that preceded all great discoveries in obstetrics throughout the ages. The spiked obstetrical forceps of the early Arabians was designed to bring out the dead fetus, piecemeal. The rediscovery of podalic version and extraction by Paré came next. Then the Chamberlain family devised the single-bladed and double-bladed forceps. The lock and pelvic curve was added by Smellie or his contemporaries. The now almost abandoned traction forceps of Tarnier and his contemporaries came next. Then came the heart-breaking story of Semmelweis, which every one should study with care, for Semmelweis is now one of the immortals.

We now come to the times of Pasteur and Lister. As you know, neither of these men was an obstetrician but both of them made a profound impression on the practice of obstetrics. It would be impossible to study the history of obstetrics without giving some thought to both Pasteur and Lister. This brings us down to modern times.

In order to understand the present state of our knowledge of the mechanics of obstetrics, it is necessary that we understand the ideas of some of the leading men in the profession today. Let us begin with Kielland. Kielland realized that the axis traction forceps had served its purpose and must be discarded; he also realized that some kind of a mid or high forceps was absolutely necessary. Kielland's forceps has a slight, almost no, pelvic curve, wherein it very much resembles the pre-Smellie forceps. It is long, light and graceful and has a peculiar sliding lock that permits traction before the blades are completely attached to the head. Kielland's forceps is a turning forceps. With it you can change the position of the sagittal suture from anterotolateral to anteroposterior. In my experience this is absolutely all that this forceps will do, but it is enough. I know of no other instrument that will turn the small fontanel from the lateral to the anterior position. This forceps is far from perfect, about which I will speak later.

Potter is a most interesting individual and must be carefully examined to understand our present day tendencies. He has performed the operation of version and extraction so often that he has developed a beautiful technic. In doing this he has perfected many little maneuvers that make the procedure much simpler and easier for operators who are less skillful. His ideas are, (1) that all versions and extractions should be done with the left hand, regardless of the position of the fetus; (2) that the vagina and perineum be ironed out with the right hand, thus leaving the left hand free and untired for the operation; (3) his manner of delivering the shoulders is an improvement over the old method of Mauriceau; (4) while he does not offer much that is new in the manner of delivering the after-coming head, I personally have had less trouble with the head since I read Potter's book.

DeLee's book is complete. Nothing is omitted. It covers the whole field of obstetrics as it is understood today. He has some ideas about the management of posterior presentation with which I cannot agree. He divides the pelvis into two halves by a line drawn from the symphysis to the coccyx, with 180 degrees on each side of the line, zero being at the symphysis. This is cleverly done and simplifies his descriptions. His method of applying the ordinary curved forceps to the head and then using a turning movement is unsound and should not be encouraged. The correct way to handle a case in which the small fontanel is posterior to 90 degrees is to bring it up to 90 degrees with the hands, then deliver with the Kielland forceps. If this change of position cannot be made with the hands, version would seem to be in order. Every precaution should be used to prevent delivery with the face forward because of the very severe injury to the mother that may follow such presentation.

In order to understand the situation today we must examine the state of mind of the men who are doing obstetrics. Quiet contentment and satisfaction would seem to be the wrong attitude. If we are to make further progress we must have a restless discontent,—a feeling that we are on the verge of other important discoveries. What are these discoveries? We may mention a few important fields for investigation: (1) Obstetrics is the only branch of surgery that is still in the antiseptic stage. Some day our technic will be so good that we will do aseptic work, just as the abdominal surgeon does. (2) Some day we will

have a long, straight forceps for application in midpelvis, with the head in transverse position. The turn having been made and the head brought into the outlet, it will be possible to change the forceps into a curved instrument and without re-application make delivery by sweeping the perineum with the face of the child in the usual way. (3) Some day delivery will be so simplified that no one will suggest that normal deliveries be interrupted and the version and extraction operation be performed. (4) Some day we will have a simplified method of inducing labor. (5) Some day we will know why labor starts. (6) And some day we will probably know accurately just at what stage in the menstrual cycle pregnancy takes place.

Wall Building.

NURSERY SCHOOL WINS PLACE IN EDUCATION

From the day nursery where working mothers could leave their children who were too young to send to school has developed the nursery school of today, in which children as young as 18 months are started on the road to learning. Dr. Frank Howard Richardson explains in *Hygeia* for September the place of the nursery school in the educational system.

Although the plan arose to fill a need of the laboring class, its next application was at the other end of the social scale. As women went more and more into business life a need developed for similar care for the children of the educated woman who is earning a living either from choice or necessity. The demands of these mothers for better care for their children has resulted in the rapid evolution of the nursery school, Dr. Richardson says.

Dr. Richardson predicts that the nursery school will become one of the most important educational advances of the century. It has been proved that children learn valuable lessons in doing for themselves much earlier than was formerly thought possible and that the skilled oversight of food, sleep and play habits have given the nursery school children a decided advantage over those who have not had its advantages.

SPORTS REPLACE ERA OF COLLEGE HAZING

College authorities have realized that it is a useless waste of time and energy to train a mind in a physically unfit body. This is the reason for the intensive development of athletics and physical training in the past decade, Dr. M. L. Ilsley observes in the September issue of *Hygeia*.

The modern sport era has largely replaced the hazing and prank era. In place of the occasional hazing or rough house of a few years ago, the majority of the students each afternoon are found practicing and playing their favorite game.

The average gymnasium class of today offers a much pleasanter hour's exercise than formerly; games and sports make the hour pass more quickly and pleasantly. Much of the self-consciousness of the physically inept has been removed so that all those physically able in most cases enter wholeheartedly into the organized athletics of the college.

WASHINGTON UNIVERSITY CLINICS

DISSEMINATE ERYTHEMATOUS LUPUS WITH UNUSUAL PUL- MONARY COMPLICATION

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Presented at the Friday Morning Clinical Conference.

Disseminate erythematosus lupus was first recognized as a definite clinical syndrome by Kaposi¹ in 1872. Although not described in textbooks of medicine, the disease is of interest to the internist because of general manifestations of the high fever, arthralgia, and rapid decline which are associated with the widespread erythematosus lesions of the skin. As an example of this remarkable disease we present the following case:

A housewife, aged 32, was first admitted to Barnes Hospital in 1927 with a chief complaint of painful joints and an eruption on the face and hands of four months' duration (Fig. 1). Pre-



Fig. 1. Erythematous plaque extending over bridge of nose and both cheeks in characteristic "butterfly pattern." Outlying lesions are noted on the forehead and lips.

viously she enjoyed good health. She has been married 14 years; she has one child in perfect health. There is a history of two induced terminations of pregnancy, following the second of which in 1923 the patient was confined to bed for about six weeks with a probable pelvic cellulitis. Recovery was complete.

Four months before she first came to us in

1927, she noticed a red "blotch" on the left side of her nose. One month later this spread gradually over her cheeks and the lower part of her forehead. Erythematous areas also appeared on the hands. Three weeks before admission the hard palate became involved, the lesion finally spreading over the lips. Coincident with the extension of the process, the patient began to suffer from arthralgia, transient in nature, involving several joints in rapid succession without any marked local signs of inflammation. There was a rapid loss of weight.

On this first admission to the hospital the patient was obviously very ill. Her temperature was 104° with a corresponding pulse. The skin lesions were typical of a disseminate erythematous lupus. There was a characteristic single reddish plaque over the bridge of the nose, a "butterfly pattern" with the wings extending symmetrically down to within one centimeter of the corners of the mouth. Outlying lesions were noted on the face, forehead, lips and chest. The palmar surfaces of both hands showed numerous plaques involving particularly the tips of the fingers and even extending under the nails (Fig. 2). The hand lesions were reddish purple and presented a shining surface with an eroded appearance in places. On general physical ex-



Fig. 2. Palmar surface of hand showing numerous reddish purple lesions extending to the tips of the fingers.

amination the lungs were clear to the stethoscope, the heart negative except for tachycardia, the blood pressure 112/80, the liver barely palpable below the costal margin. Pelvic examination revealed a retrodisplacement of the uterus and a moderate degree of subinvolution. No adenexal pathology was demonstrated. A consultant found evidence of an acute maxillary and frontal sinusitis, and an active pyorrhea associated with the mouth lesions. There were a few enlarged cervical lymph nodes.

The important laboratory studies on the first admission included: Stereoscopic X-ray of the

chest which showed a slight increase of the hilus shadow on either side and a rather marked degree of hilus calcification. There was no gross parenchymal change and the diagnosis was indeterminate. Sinus films were also reported as indeterminate. A gastro-intestinal X-ray series showed colonic motor delay and evidence of a pathological appendix. Repeated aerobic and anaerobic blood cultures were negative with one exception when a hemolytic staphylococcus aureus was recovered. This was probably a contaminant. Several tuberculin tests in varying strengths were negative. The blood tuberculin test was negative. The sputum was consistently free from tubercle bacilli. Daily urinalyses showed an occasional trace of albumin and a few white blood cells. There were no casts. The blood picture showed a definite leukopenia with a comparative increase in the transitional type of cells in the stained smear. The leukopenia was observed on repeated occasions, and was apparently uninfluenced by one blood transfusion. A typical blood count was, R. B. C. 4,550,000; hemoglobin 67 per cent; W.B.C. 3,200, with a differential formula of polymorphonuclear cells 69 per cent, lymphocytes 20 per cent, endotheliocytes 6 per cent, eosinophils 5 per cent.

The patient withstood a continual fever of the septic type, ranging as high as 105° with a pulse of 130, for three months. In seven weeks there was a loss of weight of 13 pounds in spite of high caloric feeding. Often at the height of her pyrexia she would show transient delirium and apathy. An ugly decubitus ulcer developed on the buttock. The patient suffered a respiratory complication characterized by diffuse rales and marked dyspnea, and presented for a time the clinical picture of a bronchopneumonia. At the height of her fever the white blood cells were never above 8,000. There was a progressive anemia, the red blood cells reaching a low level of 2,600,000 with a hemoglobin of 40 per cent. During the course of this devastating illness there was little change in the appearance of the skin lesions. Under supportive treatment the patient improved, the temperature subsided, the chest findings cleared up almost completely, and the decubitus ulcer miraculously healed. After one week of normal temperature, at the end of three months of hospitalization, the patient insisted upon her discharge.

Following her release from the hospital the patient's history was unfortunately one of gradual decline. The joint pains recurred and edema of ankles was occasionally noted. She was unable to do any housework. At some time during the interim she suffered from an acute respiratory attack, diagnosed by her family physician as "pleurisy pneumonia."

In October, 1928, the patient consented to return to the hospital for a one day check-up of her condition. The emaciation was more marked than it had been on previous admission. Dyspnea was constant and was intensified to an almost unbearable degree on the slightest exertion. The respiratory excursion was greatly limited on both sides; the respiratory rate more than 30 per minute. The respiratory minute volume was 10,400 cc. Against a pallid background, a suffused cyanosis was apparent. The breath sounds throughout both chests were of a high-pitched character without rales; there was dullness and diminution of breath sounds at the right base. On X-ray examination (Figs. 3 and 4) there was



Fig. 3. X-ray of lungs in March, 1927, showing slight increase of the hilus shadow on either side with some thickening of the bronchial branches but no gross parenchymal change is seen.

a fairly extensive, soft parenchymatous mottling in the first and second interspaces on either side, probably more marked on the left. The right leaf of the diaphragm occupied a high position and the costal angle was opaque. The patient undoubtedly had a chronic mediastinitis. The heart was considerably enlarged or displaced, the apex percussing some 12 centimeters from the midsternal line in the 5th space. The blood pressure was 155/110 as compared to average readings of 110/80 on her former admission. The liver and spleen were not palpated. There was no dependent edema. The extensive skin lesions,



Fig. 4. X-ray of lungs in October, 1928, showing an extensive soft parenchymatous mottling in the first and second interspaces too fine to reproduce well in the photograph. The right leaf of the diaphragm occupies a high position and the costal angle is opaque. There is evidence of mediastinitis. The heart is enlarged and displaced.

which were a prominent feature of her previous examination, had faded and become scarred and atrophied in places to the fine texture of cigarette paper.

In the twenty-four hours during which the patient had agreed to remain in the hospital, the following laboratory data were secured: The X-ray plate of the chest was reported as suspicious of "pulmonary tuberculosis and pleurisy at the right base." We were unable to obtain sputum for examination. The blood Wassermann and Kahn tests were negative. The blood non-protein nitrogen was 40 mgm. per cent; the blood sugar 132 mgm. per cent. The electrocardiogram showed a tachycardia and left ventricular predominance. The vital capacity was only 500 cc., an average of several trials in which the patient cooperated well. The basal metabolic rate was plus seven per cent; the minute volume 10.4 liters. Urinalysis showed a specific gravity of 1.020; one plus albumin; hyaline and granular casts, and a few white blood cells and red blood cells. The guaiac test was positive. The blood count revealed a moderate anemia, R.B.C. 3,900,000; hemoglobin 65 per cent; W.B.C. 5,950, with the following hemogram: polymorphonuclears 74 per cent; lymphocytes 20 per cent; large mononuclears 2 per cent; eosinophils 2 per cent; transitionals 1 per cent; basophils 1 per cent.

DISCUSSION

Unfortunately much confusion exists in the literature of this disease because of the involved and poorly descriptive nomenclature adopted by the early dermatologists. Disseminate erythematous lupus is quite distinct from the discoid type which bears the same name but in which the skin changes are often of a tuberculous nature. Patients suffering from the discoid type may react violently to tuberculin tests and evidence of tuberculosis is often found elsewhere on examination, but they do not have the serious constitutional symptoms, fever and arthralgia, which are invariably present in disseminate erythematous lupus. Tradition, however, has carried down the confusing similarity in names. Because of Kaposi's original and probably erroneous conception of the origin of the disseminate form, a relationship between these two really distinct conditions will probably be assumed until the actual cause of disseminate erythematous lupus is definitely determined. We are reminded of the confusion concerning the relationship of syphilis and gonorrhea which for many years were thought to be identical diseases due to the misleading observations of John Hunter.

The diagnosis of the average case of disseminate erythematous lupus is not difficult. When the cutaneous manifestations predominate the disease may simulate rather closely erythema multiforme, pellagra or erysipelas. If the toxic symptoms are prominent acute rheumatic fever may be suggested by the joint pains and high fever. Typhoid fever enters

into the differential diagnosis when the temperature is sustained and characteristically associated with a leukopenia.

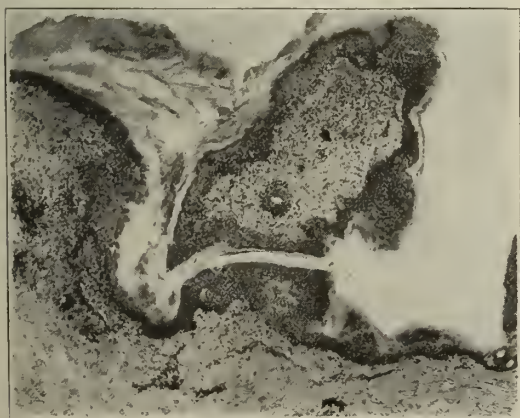
Our patient fulfills all the major diagnostic criteria of the disease outlined by Keefer and Felty,² whose review is perhaps the best available. There was an insidious onset during a period of usual good health. She suffered from general malaise, arthralgia, a septic fever with delirium and great prostration, and the gradual appearance of widespread typical skin lesions. There was a persistent leukopenia and a steadily advancing secondary anemia. Even the remission, the healing of the skin lesions with atrophy and pigmentation, the tendency to recurrent respiratory infections and the nephritic damage were characteristic of the usual course of the disease.

The remarkable involvement of the lungs and mediastinum is the unusual feature of the case just reported. An intensive search of the recent literature has failed to reveal any other case with entirely comparable intrathoracic pathology. A review of the records of the Barnard Free Skin and Cancer Hospital and of the Barnes Hospital was recently undertaken in an effort to find similar pulmonary complications. In over one hundred cases diagnosed as erythematous lupus ten were true examples of the disseminate variety. Among them we found one patient who was thought to have had a mediastinitis because of her extreme dyspnea and the development of a marked cervical adenitis during the course of a fatal pneumonia. Permission for autopsy was refused.

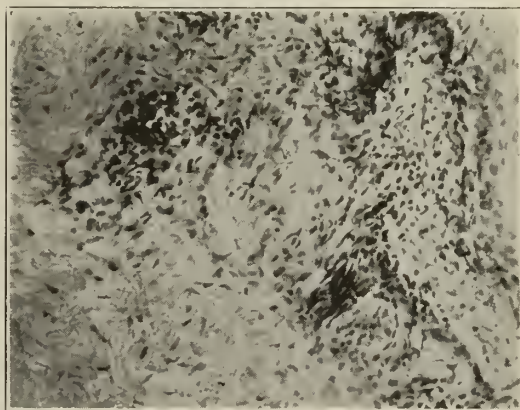
The nature of the pulmonary pathology in the case which we have presented is still unknown. The extraordinarily low vital capacity

with the absence of obvious parenchymal changes suggest a most unusual degree of pleuritis and mediastinitis. The appearance of the X-ray plate suggests the possibility of tuberculosis, but the negative tuberculin reaction, the negative tubercumet test as well as the character of the physical findings and the course of the disease make this diagnosis most unlikely. Although numerous observers have attempted to incriminate the tubercle bacillus no direct etiological relationship has ever been demonstrated. Goeckerman³ has suggested that lymphatic tuberculosis may be a fundamental predisposing cause with a septic infection elsewhere acting as the exciting agent. In the ten cases of disseminate erythematous lupus which we have found in the record rooms of Barnard Free Skin and Cancer Hospital and of Barnes Hospital (a larger group than any given in the recent literature on the subject) no conclusive evidence was found that tuberculosis has any causal relationship to the disease. In considering the possible evidence of tuberculosis in these cases the biopsy reports were not helpful for the skin lesions showed none of the characteristic features of tuberculosis.

There is no specific treatment recommended for the condition. As would be expected in a malady with protean manifestations and a high mortality, a variety of therapeutic measures have been employed. The spontaneous remissions which are a characteristic of the disease invalidate most of the therapeutic triumphs. After several recurrent attacks, or in some fulminating instances during the first attack, the patient succumbs to a respiratory infection, or to nephritis, septicemia, or cardiac failure. During this month another patient has been



(a)



(b)

Fig. 5. Typical skin lesion from arm of fatal case of disseminate erythematous lupus. Note slight amount of hyperkeratosis, acute and chronic inflammation of the corium with edema, thinning and inflammatory reaction of the epithelium. Note also absence of giant cells, tubercle formation, or central necrosis which would be characteristic of a tuberculous lesion. a. Low power; b. High power.

treated on the medical service who showed the classical signs of a healed disseminate erythematous lupus, and who gave a history of having had widespread joint pains, fever and typical skin lesions three years previously. Removal of her tonsils, which were badly infected, apparently was coincident with a remission in her symptoms and the progress of the disease. Although she was in apparently robust health when last examined one cannot be confident after so short a period that she is cured.

Intravenous gold and sodium thiosulphate is being tried out with promising results at the Barnard Free Skin and Cancer Hospital under the direction of Dr. M. F. Engman, who has also kindly supplied an abstract of the case record of a private patient with a disseminate erythematous lupus, fever, arthralgia and typical skin lesions, who responded favorably to a high vitamin diet, supplemented by a single intravenous gold and sodium thiosulphate injection. This patient has remained well for a year following the treatment.

Goeckerman,³ in a study of five cases, reports the loss of four of them. The fifth case, after all pyogenic foci had been removed, was treated with deep Roentgen ray therapy over the deeper glands (as one might treat a case of Hodgkin's disease) and was strikingly and promptly improved.

Indeed, the prognosis is so uniformly unfavorable in these cases that one is justified in a cautious trial of any of the rational therapeutic measures which have been suggested.

Beaumont Medical Building.

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ACANTHOSIS NIGRICANS

REPORT OF TWO CASES

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AND

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In the clinical discussion of diseases characterized by general or widely scattered pigmentation conditions such as Addison's disease, hemachromatosis, vagabonds' disease and scleroderma receive much attention. One rarely hears mention of the condition called acanthosis nigricans which, although it may occur as an affection of the skin alone, is so frequently and mysteriously associated with can-

cer that it excites a general interest and attains an importance possessed by few skin diseases. Its literature, however, is almost entirely limited to dermatological publications, the papers of Flaskanp,¹ Kuettner,² and Birch-Hirschfeld and Kraft³ being the only ones not contributed by dermatologists. The following statement quoted from Kuettner is fairly representative of the present situation. Speaking of a case of acanthosis nigricans, he said: "The diagnosis was first made by the professor of the dermatological department who had been called in consultation. The disease was wholly unknown to his colleagues, a fact not surprising, considering its rarity." The sentence quite aptly describes the circumstances surrounding the diagnosis of the following case.

Case 1. A woman of 60, referred to Dr. Louis Behrens by Dr. William Jewell Wood, of Shelbina, Mo., entered Barnes Hospital on January 15, 1929, complaining of progressive weakness, pain in right shoulder and both legs, discoloration of the skin and enlarged abdomen.

As an infant she had had lung fever and during her childhood had had measles, mumps, whooping cough and scarlet fever. When she was 35 years old she had an attack of pleurisy followed by several recurrences, the last of which was in 1925. She is married, has two sons living and well and two daughters in the same state of good health. Her last pregnancy some twenty years ago resulted in a miscarriage at about three months gestation due to some extra exertion at that time. Her climacteric occurred at 45 without complications.

In March, 1928, her husband noted that her neck was becoming brown. The discoloration gradually spread over the upper extremities, trunk, lower extremities and face in the order named. No discoloration of the sclerae was noted. The skin became rough and dry and the whole body involved in a severe pruritus. Her hair began to fall out at an alarming rate. The pruritus lasted for two months, subsided with the onset of warm weather only to return in September, 1928. The pigmentation increased until November since which time it is said to have retrogressed. In November, following the use of mercury, her ankles began to swell. She also noted that her abdomen was enlarging and that the veins over its surface were increasing in size. In the spring of 1928 her stools became light in color, a condition which persisted throughout her illness. Occasionally she had rather severe coughing spells, which were aggravated when she was recumbent.

Examination revealed a considerable emaciation with atrophied musculature. The sclerae were slightly icteric. The mucous membranes of the mouth showed a yellow pigmentation which might have been the accompaniment of jaundice but which seemed out of proportion to the jaundice seen in the skin and sclerae. On the hard palate there were many fine millet sized papules.

The lungs were moderately emphysematous. The heart was not abnormal. Blood pressure was 105/65.

The abdomen was dome-shaped with prominent superficial veins. The liver was palpable as a hard, slightly nodular mass, three to four finger breadths below the umbilicus. The spleen could be palpated as a firm mass just below the costal margin. There seemed to be some fluid in the abdomen but the en-

largement was perhaps chiefly due to the huge liver. The pelvic examination revealed no malignancy. Rectal examination was negative. There were considerable varicosities of both legs.

The condition of the skin was most interesting. It appeared loose and was comparatively inelastic. It looked rough and thickened but felt soft and velvety. The normal skin markings were accentuated, especially over the backs of the hands and in the axillae. There was a general golden brown bronzing with dark grayish discoloration in the axillae and in the folds of the skin generally. On the backs of the hands there were many millet sized papillomata. Similar lesions were scattered diffusely over the rest of the body but were more numerous where the pigmentation was deepest.



Fig. 1. Case 1, showing emaciation and pigmentation of the face, neck, thorax and axillae; also the black papillary hypertrophy of the skin in the axillae.

There was an exquisite symmetry in the distribution of the lesions.

A most remarkable feature of the case was the condition of the blood. In seven determinations the R.B.C. count ranged from 6,030,000 to 7,080,000, the hemoglobin from 92 per cent to 100 per cent. The W.B.C. count in eleven determinations varied from 11,500 to 19,600. There were no abnormal forms. Both clotting and bleeding time was normal; platelet count, 190,000. In the fragility test, hemolysis was present with 0.46 per cent NaCl. The nonprotein nitrogen of blood was 36 mg. per 100 cc., sugar 88 mg. The icterus index was 22, blood amylase 5.2 units according to the Elman method.

The urine was consistently normal. There was no free hydrochloric acid in the gastric contents either in the fasting specimen or after a test meal. The stool examinations were normal. No blood was seen and the guaiac test was negative. Bile was always present.

By cholecystography no visualization of the gallbladder was obtained. The liver function test showed a retention of 18 per cent of the tetraiodophthalcin after thirty minutes. The fluoroscopic examination of the gastro-intestinal tract revealed only a slight colonic motor and some colonic displacement.

The patient presented so many points of interest that several consultations were held but in spite of much discussion and study no satisfactory diagnosis was made. The condition did not conform to any of the more usual forms of generalized pigmentation. Addison's disease seemed most unlikely in the absence of marked hypotension or serious gastro-intestinal symptoms and because of the character of the pigmentation. Furthermore such a diagnosis could scarcely explain the enormous enlargement of the liver or the presence of papillomatous changes in the skin. There was no evidence of uncleanness or anything which might suggest "vagabonds' disease." The condition of the skin precluded the diagnosis of a generalized scleroderma. It was thought at first that the association of enlarged liver with generalized pigmentation might be satisfactorily explained by the diagnosis of hemochromatosis or bronzed diabetes. The absence of sugar in the urine did not exclude this diagnosis inasmuch as the diabetic picture may be of late occurrence. A section of skin, however, failed to show any abnormal iron deposit.

The diagnosis of intra-abdominal malignancy seemed to explain the large liver, the swollen abdomen and the general cachexia. Although this at the time was not thought to explain the pigmentation, it was decided that an exploratory laparotomy was indicated.

Under local and twilight anesthesia, a long incision was made to the right of the midline. About 500 cc. of bloody fluid was aspirated. The liver was enormously enlarged, containing many nodules of various sizes which were firm and white and resembled metastatic nodules of carcinoma in all respects. The liver tissue was of normal color. The gallbladder was edematous and contained a small stone but otherwise appeared normal. The stomach could not be examined because of pain. The spleen was moderately enlarged and not very firm. The primary growth was not found. One nodule in the liver was removed with cautery for examination.

Examination of this tissue showed that almost all of the liver tissue was replaced by a growth of large cells with dark staining nuclei, the cells being of glandular formation, the picture that of an adenocarcinoma. Since the fluoroscopic examinations of the gastro-intestinal tract had been negative, it was thought that the original growth was in the gallbladder.

The postoperative course was uneventful. About two weeks after the operation the patient was brought to the Friday morning clinical conference at Barnes Hospital. It was there that one of us, seeing her for the first time, suggested the correct diagnosis.

The features of this case correspond closely

to the descriptions of the literature, which may be briefly summarized. The onset is quite variable. It has been said that crops of lesions resembling common warts are not unusual for some time before other changes appear. In some cases the pigmentation may be the first symptom. The lesions start most often in the axillary and genitocrural folds. Sometimes, however, the pigmentation appears first on the backs of the hands or upon the neck where it forms a collar. Kuettner² lists pruritus as a frequent prodromal and early symptom.

The regions of the skin affected are, in the order of their frequency in the cases recorded by Pollitzer:⁴ axilla, neck, external genitalia, groin, face, inner aspect of thigh, flexor surfaces of elbows and knees, perineal region, backs of hands, breasts, gluteal region, hypogastrium, forearms, perineum and eyelids. There is usually the most perfect symmetry in the distribution. For the recognition of the disease the symmetry and typical location are hardly less important than the cardinal symptoms of pigmentation and papillary hypertrophy.

Perhaps the most striking feature is the pigmentation. The patient may appear any color from a mulatto to an atypical jaundice. This discoloration may or may not affect the whole body but is usually most marked on the face, neck, upper extremities, penis, scrotum, the region about the umbilicus and particularly the folds of the skin. In the literature, it is stated that one seldom sees pigmentation of the mucous membranes. Kuettner² considers this symptom so rare that its presence speaks against the diagnosis of *acanthosis nigricans*. Besides his second case, he could find only two other cases in the literature. It is of interest that the patient whose history we have just reported had a golden pigmentation of the mucous membranes of the mouth.

Papillary overgrowth of the mucous membranes, on the other hand, is quite common and frequently forms the basis for the chief complaint. Birch, Hirschfeld and Kraft³ show a photograph of a 62 year old male in whom papillary overgrowth of the cornea and conjunctiva was the chief complaint. The margins of the eyelids often show the same lesions.

One feature exhibited by the case which we have reported has, as far as we know, not been previously recorded. The high red blood cell count, obtained consistently on many examinations, constitutes a true polycythemia which may have been related to the enlarged spleen. It was all the more surprising in contrast to the wasting and cachexia of the patient. It may be said that many of the reported cases of *acanthosis* have been studied chiefly in rela-

tion to their dermatological condition and the blood has been studied in comparatively few of them.

The greatest practical interest in *acanthosis nigricans* arises from its relation to carcinoma. Darier⁵ was the first to call attention to its association with malignancy. At first it was considered to be pathognomonic of cancer. Pollitzer⁴ in 1909 collected 52 cases listed in the order of the age of onset; 35 cases were over 20 and of these 22 proved to be malignant while 6 were considered malignant on clinical grounds so that 80 per cent of the adult cases were definitely associated with carcinoma. Kuettner² in 1926 collected 108 cases of which only 31 were surely malignant, 18 clinically malignant and 59 showed no evidence of cancer. Since less than half of his cases were associated with new growth it appeared that the presence of *acanthosis* is not sufficient evidence on which to diagnose the presence of cancer. He concludes, however, that in a patient over 30 who has had the skin lesions for only a short time malignant disease must be suspected.

In this connection, a paper published by Willy Meyer⁶ in 1903 is of interest. He presented three cases with carcinoma of the colon which showed "many capillary angiomas and large brownish spots not unlike freckles and flat wart-like skin infiltrations." He considered these to be mild cases of *acanthosis nigricans* with a greater incidence than the more marked and usually recognized cases. Moreover, he believed this condition to be quite as good evidence of internal malignancy. It is significant that he saw some of these growths disappear after successful removal of a cancer. Pollitzer⁴ and Hollander,⁷ however, do not feel justified in calling these small limited growths *acanthosis nigricans* but consider that they are associated with carcinoma of the colon.

The reviews of Pollitzer⁴ and Kuettner² include most of the cases of *acanthosis* in which malignancy has been associated. In a careful but not entirely exhaustive survey of the literature we found a few cases which they had omitted or which have been published since Kuettner's report in 1926.

Berber⁸ in 1919 reported the case of a man aged 27 who noted that his neck was becoming pigmented, his hands rough and nails cracked. Eight months later there was a dull aching pain in the epigastrium and back, with morning vomiting. At operation there was found a carcinoma of the greater curvature and extensive carcinomatosis.

Galloway⁹ in 1919 saw a man of 30 with typical *acanthosis nigricans* and a palpable mass in the epigastrium. He considered this case

clinically carcinoma of the stomach but avoided a laparotomy because "the development of acanthosis nigricans suggested metastases to the lymph nodes around the suprarenals."

Hengstenberg¹⁰ in 1920 told of a man of 48 who had acanthosis nigricans and an X-ray picture of carcinoma of the stomach. An autopsy confirmed this diagnosis and showed extensive metastases throughout the abdomen and in the mediastinal and bronchial lymph nodes.

Forrest and Vignale¹¹ in 1925 reported a case of acanthosis in a man of 48 from Uruguay who died after a second gastro-enterostomy for carcinoma of the stomach.

Altogether we have found 43 cases of acanthosis nigricans in which cancer has certainly been associated. In addition there are 22 cases in which new growth was probably present but definite information is not available. In the list of the positive cases one finds the following distribution: Carcinoma of the stomach, 28; carcinoma of the uterus, 4; carcinoma of the rectum, 2; carcinoma of the breast,* 3; carcinoma of the gallbladder, 1; carcinoma of the lung, 1; sarcoma of the colon, 1; chorio-epithelioma, 1; lymphosarcoma, 1; melanoma, 1.

It may be seen that carcinoma of the stomach occurs much more frequently than any other new growth. It will also be noted that with the possible exception of one case of cancer of the breast and of the patient with cancer of the lung, all of the new growths were situated within the abdominal cavity. Some of the cases deserve special comment. In the remarkable spindle cell sarcoma of the colon reported by Klotz and Rhodenburg¹² there were metastases to various organs and in addition to lesions of acanthosis nigricans the skin was infiltrated with numerous metastases from the original growth. Wise in discussing a case reported at Ann Arbor by Stevens¹³ told, but not in detail, of a case in which generalized lymphosarcomatosis was revealed at autopsy. Dubreuill¹⁴ reported a case of melanotic cancerous papilloma as an associated lesion. Spietschka's¹⁵ case was associated with chorioepithelioma and is unique because the acanthosis nigricans disappeared completely following the successful removal of the tumor. In Hodara's¹⁶ case of carcinoma of the breast regression but not complete disappearance of the skin lesion followed a radical amputation of the breast. The improvement in Hodara's case may have been coincident for many of the reported cases have undergone spontaneous regression. In not a few an im-

provement in the skin condition has been noted during the terminal cachexia resulting from the cancer. The history indicates that this occurred in the case which we have reported.

A relationship between disease of the adrenals and acanthosis nigricans has not been established. Furthermore, no case of Addison's disease with acanthosis has ever been reported.¹⁷ The two conditions are, however, frequently confused. It has been pointed out that one of the cases in Addison's original paper¹⁸ was probably an example of acanthosis. His description is of interest.

A short woman, emaciated and feeble, skin harsh and dry, and of darkish hue. The folds of the axillae were remarkably dark; colored patches, about the size of the palm of the hand, were observed raised in wrinkles and resembling a slight ichthyosis; also a very dark brown areola around the umbilicus. Hair gray; much long hair on lips and chin. Always enjoyed good health. The stomach symptoms began four months ago. For three months she has had vomiting, with pain in the abdomen and back, particularly in the latter. She has vomited no blood. She was sent to the hospital as a case of malignant disease of the stomach. The stomach can be felt as a hard tumor in the abdomen; no remains of eruption on the skin. The vomiting continued after admission and in three days she died from exhaustion.

On either side of the neck there was a tawny appearance which would not have been remarked had it not been for three still more marked tawny patches, one on the center of the sternum the other two under either axilla. The skin also, besides presenting this yellowish-brown appearance, was somewhat raised and wrinkled or corrugated. The mediastinal glands in one or two instances were carcinomatous. The stomach showed diffuse (colloid?) carcinoma without any marked ulceration. Externally to the stomach several of the glands were affected, even to the head of the pancreas but the pancreas itself was not affected. Several of the lumbar glands were enlarged. The left suprarenal capsule was infiltrated with malignant material and closely adherent to the vessels of the kidney. The kidney itself was healthy.

There is no other condition which vies with cancer in the frequency of its association with acanthosis. Kuettner² has assembled a long list of associated factors, several of which may be mentioned. Perhaps the most remarkable is the case report by Wise¹⁹ in which decapsulation of the kidney was followed by acanthosis nigricans after thirteen months. In Stevens¹³ case there was an apparent association with a psoas abscess. Jadassohn²⁰ reported a family in which the mother, a daughter and a son had the skin lesions and a pathological obesity.

Besides the cases in which carcinoma and other definite factors are associated, there is a considerable number in which there is no apparent etiological or related condition. Since these cases usually develop early in life they are often referred to as the juvenile type of the

* In two of the cases of carcinoma of the breast there were metastases to the liver.

disease; adult cases of exactly similar character and prognosis are, however, not rare. The following case is in many respects typical of this group:

Case 2. A man of 37 was referred to Barnard Free Skin and Cancer Hospital in May, 1921. He was born in Oklahoma and, except for a period of service during the Great War, spent his entire life in that section working as a laborer on a stock farm.

For several months he had been in the care of the Public Health Service because of hoarseness and throat complaint which had been present continuously for twenty months and intermittently for two years. This trouble had started at one of the army camps following food poisoning which probably was a true botulism.

At the age of 13 he had had typhoid for seven weeks. Measles at 21 had been followed by an almost complete alopecia; had tonsillitis for two months in 1916; vaccinated in 1916 and again in the Army in 1917; typhoid inoculation in 1917 and 1919 in the Army; in 1918 had been gassed in France.

When seen at the hospital his hoarseness formed his chief complaint. He was referred, however, because of a skin condition which had been present on his eyelids and elbows since the age of five.

Examination revealed a well nourished man, well tanned, with thick black hair over the scalp but sparse hirsutes over the chest. Pharynx was congested, tonsils ragged, heart and lungs normal, blood pressure 134/88. Except for the skin condition, no significant abnormalities were found. The mucocutaneous surfaces of the lips presented a thickened scaly condition with an exaggeration of the normal folds. The upper eyelids showed many small pink to pearly colored, papillary projections,



Fig. 2. Typical lesions of eyelids of Case 2.

extending from inner to outer canthus. The papillae were about 2 mm. long and $\frac{1}{2}$ mm. in diameter, perfectly round, surrounding hair follicles, and each pierced by a hair. Some of them were confluent. They caused no subjective sensations other than their added weight to the lid.

The greater part of the eruption could be seen in the axillae, flexors of the wrists, elbows, the dorsum of the fingers, the scapular region, the upper half of the buttocks and between their folds, the popliteal spaces, over the tendon Achilles and the dorsum of the toes of both feet.



Fig. 3. Typical pigmented lesions of the elbows in Case 2 (juvenile type).



Fig. 4. Lesions occurring over the joints in Case 2.

The lesions consisted of irregularly outlined and grouped hypertrophic papillae showing a marked exaggeration of the normal folds of the skin. The papillae individually measured 1 to 2 mm. in diameter and $\frac{1}{2}$ to 1 mm. in height, showing a grayish color with numerous areas of black pigment. As the lesion approached the normal skin it gradually assumed the characteristics of the latter.

In the posterior thoracic and lumbar regions the eruption had an entirely different appearance. The early lesion was of a red color, with a thickened and slightly flat topped irregularly outlined patch, measuring from 3 to 4 cm. across the lesion. As the red color faded a brown pigment remained.

A nose and throat examination was made by Dr. V. V. Wood. The tongue felt thick, infiltrated, inelastic, was not as freely movable as normal, could hardly be protruded past the teeth. The teeth left permanent impressions on the tongue. The base of the tongue and lingual tonsils showed deposits of grayish black pigment in a flat wart-like lesion. There were also occasional tubercle-like areas on the tongue. On the anterior pillar above the right tonsil were grouped deposits of this same grayish pigment which, upon palpation, were found to be deep-seated infiltrated papillary lesions. Both faucial tonsils showed deposits of the same grayish



Fig. 5. Typical pigmented lesions of the axilla of Case 2.

pigment and there were areas of pigment deposited and scattered in many places. There were also scattered deep-seated infiltrations which apparently raised the superficial layers of mucous membrane in nodular-like lesions not larger than 3/16 inches in diameter. There was an appearance of nodular nonpigmented thickening and infiltration about the right arytenoid. The right vocal cord was apparently immovable and took a position a little to



Fig. 6. Erythematous lesions of back, not diagnosable without other skin lesions, Case 2.

the right of the midline. The hoarseness was apparently due to immobility of this cord and was probably caused by a mechanical obstruction from the infiltration of the larynx. It seemed possible, however, that there might be some interference with the recurrent laryngeal by deposits in the chest or elsewhere along its course.

In the juvenile cases the skin dystrophies are rarely so marked or so extensive as in those which are associated with cancer. The disease once established tends to remain stationary indefinitely, in one case for 40 years, while in adult cases associated with carcinoma the cutaneous lesions undergo fluctuations in their development, sometimes even disappearing completely. The health in the juvenile cases is seldom if ever affected while in the other group patients rarely survive more than two years after the appearance of the skin lesions, the average duration of life being one year.

Pathologically the skin lesion in the two groups is identical. In figures 7 and 8 one may see the typical acanthosis of the skin and very

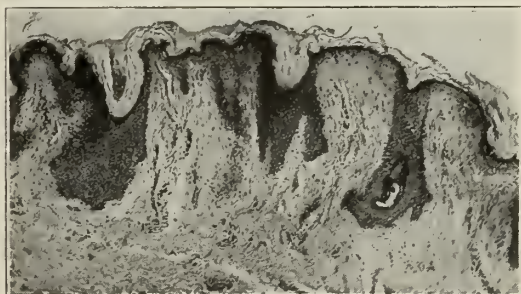


Fig. 7. Typical acanthosis of the skin from axillary region. The columnar (basal layer) cells contain very dark brown pigment. The corium is normal except for the papillary projection.

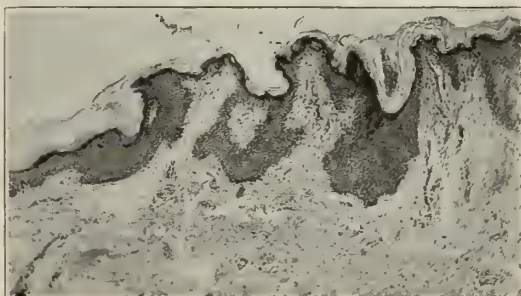


Fig. 8. Typical acanthosis with normal skin to the left.

dense infiltration of the basal layer by dark pigment. In figure 8 a section of normal skin may be compared with the pathological tissue.

SUMMARY

Acanthosis nigricans causes pigmentary changes in the skin which may be confused with other more common diseases. It is, however, accompanied by papillary hypertrophy of

the skin which usually serves to distinguish it. In children and occasionally in adults it appears as an idiopathic condition. Under these circumstances it is benign and has no effect on the general health of the individual. When it makes its appearance for the first time during adult life, however, it is frequently associated with internal cancer of the abdominal cavity and is consequently a sign of serious prognostic significance.

Beaumont Medical Building.
Barnes Hospital.

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ASPIRATION IN EMPYEMA OF CHILDREN

During 1928, thirty-seven patients were treated for empyema at the Children's Memorial Hospital. All of these were treated by aspiration alone except five. In thirty-three cases of empyema treated by aspiration alone, there was a mortality of about 9 per cent. Aspiration was done with either a large Luer syringe or a modified Potain aspirator, after local anesthesia was induced with 1 per cent procaine hydrochloride. In no instance was there any shock or alarming symptoms of any kind in the 122 aspirations that were done. Aspiration was done from one to eleven times, with an average of four times. In six patients aspiration was done only once; in seven only twice. In some patients aspiration was done every two days for a time, in some twice a week; but sometimes a week or two or more would elapse. Eugene T. McEnery and Joseph Brennemann, Chicago (Journal A. M. A., Aug. 3, 1929), were guided wholly by the general condition of the child, the evident amount of pus, the degree of respiratory embarrassment, the location of the heart, and the temperature curve, and always they leaned toward delay rather than haste. It will be noted that less than 10 cc. was aspirated in each of seven cases, but more than 100 cc. in 60 per cent of the cases. The mortality is notoriously high under 2 years of age, and especially so under 1 year of age. The temperature was often a fair measure of the progress toward recovery and also served, to some extent, as an indication for renewed aspirations. In only three instances in 122 aspirations was there a transient cellulitis about the point of exit of the needle. All of these yielded promptly to wet dressings without suppuration. A disquieting symptom in their earlier cases was the occurrence after a time, in extensive empyema, of a sinking in of the upper part of the chest with a lowering of the shoulder, and a lateral scoliosis with concavity toward the affected side. In all of them there was apparently a complete return to normal after a time. The last symptoms to disappear were slight dulness and suppression of breath sounds, and a haziness in the roentgenograms. These often persisted for some time after there was a return to florid health. In general the children did not dread the aspiration to as great an extent as they did an open operation with the more frequent dressings and manipulations of the tube. Often the older children welcomed a renewed aspiration because of the relief that had followed the others. In conclusion they emphasize that their purpose is not to advocate aspiration as a sole, routine measure in all empyemas of children. They rather present evidence that a large number of empyemas can be cured by aspiration alone; that it is the method of choice in infancy; that empyema is not an emergency and that large amounts of pus can be absorbed; that fibrin masses do not seem as serious an obstacle as is commonly assumed; that a complicating pneumothorax is not an alarming symptom and that when it is a part of a rupture through a bronchus it has often seemed rather to help than to hinder a return to normal; that the evidence is very questionable that pneumococcus empyemas alone are favorable to treatment by aspiration, and that there should be no one routine treatment for empyema in children regardless of the one important factor—the age of the child.

THE JOURNAL

OF THE

Missouri State Medical Association

OCTOBER, 1929

EDITORIALS

TO INCREASE EFFICIENCY OF STATE HOSPITALS

An unusual opportunity for experience and training in an attractive line of work is in prospect for young physicians of good qualifications under the new Board of Eleemosynary Institutions. The new board seems definitely determined to take this important branch of the state's business out of politics. The resulting efficiency of administration means most, of course, to the unfortunates for whom the institutions were created, and to the taxpayers who foot the bills, but if the board is able to carry out the plans to be proposed it will mean much also to those physicians who are looking for opportunities in an interesting branch of medicine.

The opportunity will be for assistants in the eleemosynary institutions. These positions may then be taken without fear that political considerations will act against security of tenure or freedom of action within the professional bounds of the position. Furthermore, contacts will be assured with men of wide experience and practicing modern methods.

Of particular interest to men embarking upon a study of nervous and mental diseases, a plan probably will be arranged for periods of training, with salary, in the finest Eastern institutions. This will give assistants an advantage for which most young specialists have to pay and therefore to wait until their practice is on a materially remunerative basis—a process on the whole of lifting oneself by the bootstraps.

Higher salaries and better housing conditions are in prospect under the new board. Improvements are under consideration in the present structures and rebuilding of three of the hospitals for the insane, those at Fulton, St. Joseph and Nevada, has been recommended to the State Survey Commission.

This line of study is one of the most interesting in the profession and the work, for the man who masters it, is most remunerative. Tremendous advances have been made in understanding and some in treating nervous and mental diseases, but still greater advances remain to be made. It is a task which calls for

"bold yet balanced thought," for the brightest and most meticulous minds among our younger men. It is to be hoped that the new board can consummate its plans for offering new opportunities of discovering and seasoning them.

THE PHYSICIAN, DISASTER RELIEF, AND THE AIR SIGNAL CODE

The multiplicity of change and of changes, as of today, has been given super-intensified attention. The thoughtful mind will recognize that change in and of itself is not of necessity and invariably a valuable thing; but likewise the thoughtful mind will accord the fullest recognition to the value of a meritorious change.

Quite possibly in no other field has America shown a more radical change of attitude than in its present concept and policy regarding disaster and disaster relief. It is no mere juggling of words to state that we have steadily developed a disaster-mindedness, and concomitantly a disaster-consciousness of responsibility.

The chief agency through which these find expression is the American Red Cross, which is headed by the President of the United States and officered by men prominent in government affairs and by leaders in civil life. Chapters of the Red Cross are almost precisely numerically equivalent to the counties of the United States.

It is not commonly recognized how frequent are disasters, nor how largely they bulk in our economic life. Thus, from the 1928 Annual Report of the American Red Cross we find that, in the completed year, sixty-six disasters occurred, and that fourteen disasters (of the prior year and not yet completed) were carried over and finished. That, within this period alone, \$17,186,608.14 were expended by the Red Cross for its disaster relief measures.

It may be fairly held that no other philanthropic administrative agency throughout the world has had either the diversified experience or has been able to formulate such dependably efficient methods of relief technique as has the American Red Cross.

"He jests at scars that never felt a wound"; in much the same fashion is it extremely difficult for one never caught in a major disaster area to realize the extent and the complexity of a major destruction. Not the least of such complexities is the isolation wrought when all communications with the outside world have been broken. In

such cases, relief agencies from without have no knowledge of either the extent of the damage or of the particular and more insistent needs; while on the other hand those within the disaster area are exerting every effort to survive, and have neither the time nor the facilities to establish contact with the outside.

It may be readily seen that under certain circumstances, particularly in the more remote and isolated areas of America and her insular possessions, such a status unrelieved may seriously threaten community extinction.

Careful consideration has been given this problem by the Red Cross and, through a cooperative liaison maintained with the Army, a workable signal code has been devised, tested, and adopted, by means of which the needs of a disaster area may be communicated to planes or dirigibles that will make reconnaissance. Most thorough cooperation has been promised by the Chief of Air Service, U. S. A., and all Air Units have been instructed in accord. On another page of this issue a copy of this signal code is printed.*

Through yet another liaison, established with the American Medical Association and its components, the county medical society will automatically take over all medical, surgical, and sanitary problems until the Red Cross or other properly authorized state or municipal agency takes official control of the situation.

It is therefore important that every physician be conversant with this signal code, and in particular the president and secretary of each county medical society. To them it is specifically recommended that this printed copy be displayed and maintained in some definitely conspicuous place and thus readily accessible in the hour of need.

For those not conversant, it may be added that accuracy of aerial interpretation is dependent upon accuracy of ground paneling, hence the code must be followed without deviation, the instructions as printed being both intelligible and adequate. Needs as they arise or as they are later discovered are to be met by suitable paneling for the instruction of the scouting planes. For those who are desirous of more intelligent and comprehensive knowledge of disaster problems it is advised that a copy of the pamphlet "When Disaster Strikes" be secured from the Red Cross.

NEWS NOTES

Dr. Alexis F. Hartmann, St. Louis, was a guest of the Colorado State Medical Society at its Fifty-Ninth Session held at Greeley, Colorado, September 3, 4, 5, 1929, and spoke in the Symposium on Acidosis.

Dr. Vincent L. Jones, St. Louis, who is associated with Dr. Emmett P. North in the practice of ophthalmology, has returned from an extended trip to Europe where he made an intensive study of the eye in the various eye clinics, particularly in the University of Vienna.

The United States Civil Service Commission announces open competitive examinations for physician, associate physician, associate medical officer and assistant medical officer. The examinations for physician and associate physician are to fill vacancies in the U. S. Veterans' Bureau only, examinations for associate and assistant medical officers being for vacancies in the Federal classified civil service throughout the United States. Applications will be rated as received by the Commission at Washington, D. C., until December 30, 1929. Applicants will not be required to report for examination at any place but will be rated on their education, training and experience. Full information may be obtained from the Civil Service Commission at Washington, D. C., or at the post-office in any city.

The following articles have been accepted for New and Nonofficial remedies:

Abbott Laboratories

Abbott's Viosterol Cod Liver Oil

Ciba Co., Inc.

Atoquinol—Ciba

Vioform—Ciba

Eli Lilly & Co.

Inhalant Ephedrine (Plain)—Lilly

Hypodermic Tablets Ephedrine Hydrochloride—Lilly, 0.016 Gm. ($\frac{1}{4}$ grain)

Hypodermic Tablets Ephedrine Hydrochloride—Lilly, 0.0325 Gm. ($\frac{1}{2}$ grain)

Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.016 Gm. ($\frac{1}{4}$ grain)

Hypodermic Tablets Ephedrine Sulphate—Lilly, 0.0325 Gm. ($\frac{1}{2}$ grain)

Lilly's Ephedrine Jelly

Ointment Ephedrine Compound

Syrup No. 110 Ephedrine Sulphate

Syrup No. 111 Ephedrine Sulphate

Mead Johnson & Co.

Mead's Powdered Lactic Acid Milk, Non-Curdling No. 1 with Dextrose

* See page 528.

Dr. Frank V. Tracy, St. Louis, has been appointed assistant chief of the clinic for venereal diseases of the St. Louis City Health Department, effective September 1. Dr. Tracy succeeds Dr. J. Sherman Pope, resigned.

Dr. E. H. Kessler, St. Louis, attended the annual meeting of the American Roentgen Ray Society in New York City, September 17, 1929. Dr. Kessler discussed the roentgenological aspects of "Manifest Latent Tuberculosis," papers contributed by Drs. Opie and Evans.

Dr. Robert A. Strong, Pass Christian, Mississippi, has been appointed professor of pediatrics in the Tulane University School of Medicine. Dr. Strong succeeds Dr. L. R. Debuis who has held the chair of pediatrics for eight years. Dr. Strong is editor of the *International Digest* which position he will continue to fill.

The Fourth Annual All-Day Fall Clinical Meeting of the Adams County Medical Society will be held at Quincy, Illinois, Monday, October 14. This will be one of the largest one day programs of any county medical society in the Middle West. The speakers who have been secured are sure to attract a large attendance. The program is an all-Philadelphia one and will be given by members of the faculties of the University of Pennsylvania School of Medicine and the Graduate School of Medicine of the University of Pennsylvania. Among those who will give papers or clinics are: Dr. E. L. Eliason, Professor of Clinical Surgery; Dr. E. B. Piper, Professor of Obstetrics; Dr. Gabriel Tucker, Assistant Professor of Bronchoscopy and Esophagoscopy; Dr. I. S. Ravdin, Assistant Professor of Surgical Research; Dr. W. Estell Lee, Professor of Surgery; Dr. R. H. Ivy, Professor of Maxillo-Facial Surgery; Dr. William Bates, Assistant Professor of Surgery; Dr. T. Turner Thomas, Associate Professor of Applied Anatomy; Dr. J. A. McGlinn, Associate Professor of Gynecology; Dr. B. R. Beltram, Assistant Professor of Surgery.

Dr. Emmett P. North, St. Louis, has been elected one of the fourteen governors of the Alumni Association of the American Medical Association of Vienna. The Alumni Association, we learn from *Ars Medici*, the official journal of the American Medical Association of Vienna, was organized in July, 1929, to serve, among other activities, as an intermediary between the American Medical Association of Vienna and the medical profession

in America. Each of the governors will serve for a period of three years. Dr. North was president of the A. M. A. of Vienna in 1912. All former members of the A. M. A. of Vienna are members of the Alumni Association and are entitled to vote at the annual meetings which will be held in the United States at the same time and place as the annual sessions of the American Medical Association. The first Board of Governors which has just been elected will have authority to organize the Alumni Association at the Detroit meeting of the American Medical Association in 1930. Other members of the Board of Governors are: President, John H. Besson, Portland, Oregon; 1st vice president, G. C. Klein, Taylorville, Illinois; 2nd vice president, Isaac Abt, Chicago; secretary treasurer, U. Grant Clifford, Kennett Square, Pa.; Paul White, Boston; Bernhard Kaufmann, San Francisco; Harold Haskell, Troy, New York; Frank Linder, Chicago; N. P. Scala, Washington, D. C.; Joseph Aub, Boston; Wm. B. Chamberlain, Cleveland; Walter Nadler, Chicago; Bernard Samuels, New York.

OBITUARY

ARTHUR VINCENT CAMPBELL, M.D.

Dr. Arthur V. Campbell, St. Louis, a graduate of Washington University School of Medicine, 1875, died at his home July 27, 1929, aged 75.

Dr. Campbell was born in Des Moines, Iowa, in 1854. At the age of five years he came with his parents to St. Louis, which remained his home until his death. He was educated in the St. Louis public schools, the St. Louis Medical College (now Washington University School of Medicine) and by special study in the East. He graduated in medicine in 1875, immediately after which he went to Wisconsin and engaged in general practice for one year. He then returned to St. Louis and became associated with his father in the practice of ophthalmology, in which field he was active until a few months before his death. He was the second of three generations of oculists which his family has given to St. Louis. He was a member of the St. Louis Medical Society, a Fellow of the American Medical Association, and was oculist for the Brotherhood of Railroad Trainmen and the Emerson Electric Company.

Dr. Campbell belonged to that group of American physicians responsible for the high place the profession has held in the hearts of the American people. A gentleman by breeding and instinct, it naturally followed that his

professional relationships would be characterized by tact, consideration and unselfish kindness. To what high degree this was true all who knew him can attest. Modest and unassuming, almost to a fault, he gave himself without stint or thought of recompense to patient and friend. Both mourn him dead.

He was a worthy representative of a profession that in his death has sustained a real loss. We can only stand at salute to

"One who never turned his back but marched breast forward,

Never doubted clouds would break,
Never dreamed, though right were worsted, wrong
would triumph,

Held we fall to rise, are baffled to fight better,
Sleep to wake."

H. S. H. in *The Bulletin of the
St. Louis Medical Society.*

EMIL SIMON, M.D.

Dr. Emil Simon, St. Louis, a graduate of the University of Wurzburg, Germany, 1890, died August 16, 1929, of a heart stroke suffered the day before, aged 61.

Dr. Simon was a native of Hamburg, Germany. After graduating from medical school he took postgraduate courses at Munich and Vienna. For six years he traveled the seas as ship physician and came to the United States thirty-eight years ago. He practiced at Brenham, Texas, and Hermann, Missouri, before going to St. Louis in 1904 to become physician to the Workmen's Sick Benefit Association, which position he held for twenty-five years. At one time he was a member of the St. Louis Board of Education and at the time of his death was president of the St. Louis Free Thought Society. He was a member of the St. Louis Medical Society and the Schlaraffia, an organization of former German university students.

He is survived by his widow, Mrs. Clara Strauss Simon; one son, Walter J. Simon; one daughter, Mrs. A. J. Chartrand, and one brother and one sister in Germany. Funeral services were held August 19 under the auspices of the Magnolia Lodge of Free Masons to the Missouri Crematory.

FREDERICK AUFDERHEIDE, M.D.

Dr. Frederick Aufderheide, Centertown, a graduate of the Homeopathic Medical College of Missouri, St. Louis, 1897, died July 25, 1929, at St. Mary's Hospital, Jefferson City, of malignant endocarditis, aged 58.

Dr. Aufderheide was born at Woollam, Mis-

souri, August 2, 1871. On August 15, 1895, he was married to Miss Lizzie M. Deppe, at Glenvil, Nebraska. Following his graduation he located at Drake, Missouri, remaining there until 1921 when he with his family moved to Centertown where he practiced until May 28, 1929.

Dr. Aufderheide was a strong character who held a unique place in the Cole County Medical Society and in his community which can never be filled. He was a Fellow of the American Medical Association. Surviving are his widow and one daughter.

L. D. ENLOE.

WERNER HENRY WAGNER, M.D.

Dr. Werner H. Wagner, Washington, a graduate of the St. Louis College of Physicians and Surgeons, 1913, died August 1, 1929, at St. Anthony's Hospital, St. Louis, following an operation for appendicitis, aged 39.

Dr. Wagner was born at Hecker, Illinois, in 1890. He attended the public schools at Waterloo, Illinois. After receiving his medical diploma he began practice at Berger, Missouri, moving to Washington in October, 1927. He took an active interest in the affairs of the Franklin County Medical Society, joining in 1915, and being elected vice president in 1928. He served overseas during the World War. He was a well trained physician and gentleman of high instincts and found a warm place in the hearts of all of his patients and all who knew him.

HUGH JAMES PATTON, M.D.

Dr. Hugh J. Patton, McFall, a graduate of Bellevue Hospital Medical College, New York, 1892, died June 22, 1929, at the home of his sister in St. Joseph, of acute uremia following pyelonephritis.

Dr. Patton obtained his preliminary education at the University of Missouri. He specialized in obstetrics and in diseases of children. He was a member of the Gentry County Medical Society.

HERMAN L. WICHMANN, M.D.

Dr. Herman L. Wichmann, St. Louis, a graduate of Washington University School of Medicine, 1888, died July 13, 1929, of cardiac asthma and chronic nephritis, aged 63.

Dr. Wichmann practiced in St. Louis for forty-one years. He was a member of the St. Louis Medical Society and a Fellow of the American Medical Association.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.
Ralls County Medical Society, December 17, 1928.
Chariton County Medical Society, December 28, 1928.
Mercer County Medical Society, January 2, 1929.
Camden County Medical Society, January 11, 1929.
Benton County Medical Society, February 13, 1929.
Dent County Medical Society, April 3, 1929.
Marion County Medical Society, April 8, 1929.
Platte County Medical Society, April 11, 1929.
Atchison County Medical Society, April 22, 1929.
Christian County Medical Society, April 24, 1929.
St. Francois-Iron County Medical Society, April 24, 1929.
Schuyler County Medical Society, May 3, 1929.
Shelby County Medical Society, May 6, 1929.
Lafayette County Medical Society, May 15, 1929.
Scotland County Medical Society, May 22, 1929.
Henry County Medical Society, June 20, 1929.
Grundy County Medical Society, July 15, 1929.
Macon County Medical Society, July 15, 1929.
Wright-Douglas County Medical Society, August 6, 1929.
Caldwell County Medical Society, September 9, 1929.

CALDWELL COUNTY MEDICAL SOCIETY

The Caldwell County Medical Society met in Breckenridge, August 22, 1929, at two o'clock, with the following members present: President, Dr. G. S. Dowell, Braymer; Secretary, Dr. Tinsley Brown, Hamilton; Drs. B. F. Carr and C. H. Wilbur, Polo; E. A. B. Thompson, Breckenridge. Dr. Ralph W. Holbrook, Kansas City, was present by invitation. The minutes of the meeting held at Hamilton June 27 were read and approved.

The histories of several clinical cases were discussed and proved very interesting.

Dr. Ralph W. Holbrook, Kansas City, President of the Jackson County Medical Society, addressed the Society on the matter of irregular practitioners using the title of "M.D." who have never received

the degree of doctor of medicine nor have been licensed by the State Board of Health. It seems that the larger cities are infested with this class of charlatans but few are found in the smaller towns and in the country.

The Society extended a vote of thanks to Dr. Holbrook for his presence and address.

The September meeting will be held at Braymer.
TINSLEY BROWN, M.D., Secretary.

GASCONADE-MARIES-OSAGE COUNTY MEDICAL SOCIETY

The Gasconade-Maries-Osage County Medical Society met at Hermann, June 20, 1929, with about sixteen physicians present.

The scientific program was furnished by Drs. J. S. Summers, Jefferson City, and W. F. Neun, St. Louis.

Dr. Summers gave an interesting talk on the "Shilling Method of Differential Blood Counting."

Dr. Neun read a paper on the "Use of Modern Anesthetic in Obstetrics."

Both subjects were well presented and those present derived much benefit from the addresses.

M. E. SPURGEON, M.D., Secretary.

KANSAS CITY ACADEMY OF MEDICINE Meeting of April 26, 1929

NIEMANN'S DISEASE. — By DR. H. R. WAHL.

Synonyms: Niemann-Pick disease; essential lipoid histiocytosis; lipoid cell splenomegaly. There have been fifteen cases reported in the literature in the last three years.

Gaucher, in 1882, described a syndrome (which bears his name) characterized by an enlarged spleen containing large vacuolated cells with foamy cytoplasm; the symptoms are few and the course chronic. Gaucher's disease is generally a disease of adults. Pick distinguished between this syndrome and the one described by Niemann. The latter starts in infancy and is fatal within two years; there is delayed development of the child, usually a yellow skin and a leukocytosis. Features in common with Gaucher's disease are a familial tendency, occurrence in the female sex and in Jews, the spleen and liver enlarged.

Chemical studies show this difference between the two diseases,—kerasin, a cerebroside, is found in the lipoid material of Gaucher's disease and lecithin, a phosphatide with doubly refractile properties, in Niemann's disease.

In Niemann's disease, large lipoid bearing vacuolated cells have replaced the normal pulp cells in the spleen, liver, and lymphadenoid tissue generally. They also tend to appear in other tissues. A clinical diagnostic point is the finding of similar vacuoles in the agranulocytic cells of the blood. Chemical examination of the blood shows increased cholesterol and lipoids in general.

TREATMENT OF CANCER.—By DR. ELMER TWYMAN.

Two kinds of treatment are now outstanding, radiation and surgery. Both produce cures. Studies of results obtained tend to establish for each its field and its limitations. These fields will be enlarged and limitations narrowed by improved apparatus and better trained operators. There should be consultations between surgeon and radiologist on each case.

The limitation of radiation is the question of selective susceptibility of the tumor concerned, and also a comparison of its prospective offering with

that offered by surgery. Lack of biopsy material is a handicap. Radiation is forced to carry a heavy burden of late, neglected and hopeless cases, and should not be charged with failure in such cases.

Surgery includes all forms of anatomical subtraction,—cold knife, endotherm knife, coagulation, dessication, cautery, and escharotic pastes. Precedence is favored by accessibility. If the entire growth can be removed with a margin of safety on an allowable anatomical sacrifice, it is the method of choice. But available biopsy material diminishes the number of reportable cured cases.

Great improvement has occurred in both procedures and prospects for the future are quite hopeful. I see nothing but good in the existence and practice of the two major methods.

DISCUSSION

DR. E. H. SKINNER: The problem is not one of competition. There should be regular consultation between surgeon, radiologist, pathologist, and internist. Schematically, the known values of radiation are in cancer of the skin, glands, mucous membrane and some pelvic organs; the palliative values are in cancer of the uterus, esophagus, rectum, bladder, mouth and prostate gland; the speculative values, in cancer of the bone, breast and pedunculated tumors of the stomach; and the known failures are in cancer of the lesser gastric curvature, liver, gall-bladder, larynx, lung, brain and some bones. The known values and palliative groups overlap.

I believe that the management of malignant conditions rather than the cure should be studied, comparable to that of heart or kidney disease. Prevention is already a well defined method of treatment, and vaccination is a hope of the future.

DR. EARL PADGETT: Many cases that the surgeon can do the most for the radiologist can do the least for, and vice versa.

DR. F. C. HELWIG: The surgeon and radiologist have greater advantages than the pathologist when there is no clinical history. The prognosis based on grading by histological observations alone is more or less of a hopeless proposition. We need every bit of clinical knowledge available.

DR. CLAUDE HUNT: Cancer may seem more prevalent now than formerly because people live longer and because more accurate diagnoses are made. As a preventive measure, irritating conditions should be relieved, especially when there is a history of heredity. Surgeons are occasionally too timid in operating, or there is faulty technic with contamination of the fields with cancer cells. This may account for recurrence of breast cancer.

DR. TWYMAN, in closing: In cancer there is the psychology of the patient, that of the public, and that of the physician. The patient does not want to admit that he has cancer even if he is cured. But when one dies, it is talked about. Also, if a patient is told it is serious he will decide to have it treated immediately, while if it is an early condition and he is told that there is little risk in operation he may let it go on. There are two classes of surgeons—the one who thinks he can cure cancer and the one who never cured cancer and operates anyhow.

RECENT VIEWS OF EPILEPSY.—By DR. E. T. GIBSON.

There is as yet no conclusive theory of epilepsy. I will mention briefly some of the partial theories, all of which lead to suggestions for treatment.

1. There is usually a serial regularity in the epileptic attack which suggests that it is not a disease but a set of symptoms brought out under specific conditions, a response to nervous stimulation. There is always a necessary factor of inhibition at work.

Considering nervous activity as a chain, inhibition in one link gives rise to activity in the next link and the epileptic attack may be a wave of inhibition winding up at the final common pathway from the cord. It involves the neural mechanism of attention with which there is usually increased muscular activity. Epileptic attacks, then, are not a new affair but a facilitation of a normal process. They are a habit and may be controlled by education.

2. Minimum brain injuries may be at the bottom of epileptic attacks—a narrowing of the idiopathic class. As high as 9 per cent of new-born babies have been found to have bloody spinal fluid.

3. Encephalography shows many changes to have occurred in the frontal and parietal areas—deep air pockets usually about the pachionian bodies. These bodies to a large extent seem to govern intracranial pressure and when their function is suppressed epileptic attacks may occur. The age of epilepsy corresponds to the age of development of the pachionian granulations. If cerebral edema on this basis is the cause of the attacks the treatment is dehydration.

At a symposium presented before this body five years ago on a similar subject it would have been impossible to present so many suggestions. The subject of epilepsy is advancing.

DISCUSSION

DR. A. L. SKOOG: This is an extensive subject. I believe there is no single cause of epilepsy. Occasionally, consciousness has been preserved during an attack and the patient has suffered severe pain. Experimentally, visible changes have been noted in the brain during an attack with markedly increased intracranial pressure.

The hereditary factor is a moot question. Environment should also be considered in evaluation of the possible factors for the individual case.

DR. B. LANDIS ELLIOTT: I sometimes feel as if my own mind were in a state of confusion, like that mentioned by Dr. Gibson, concerning epilepsy. Recently I began using some of the older remedies for epilepsy, among them sodium borate as introduced by Gowers. One patient responded nicely after failure to improve with luminal and bromides.

DR. GIBSON, in closing: I have cured some cases with peptone injections, but this treatment fails to affect other cases and is not generally satisfactory.

Meeting of May 10, 1929

MAXILLARY SINUS DISEASE.—By DR. O. S. GILLILAND.

The antrum is the sinus most frequently infected and much attention has been directed to it since the influenza epidemic of 1917.

Case 1. Woman, aged 30, with acute sinusitis. Left antrum involved first; the right, three years later. Contrary to expectation, one infection does not predispose to another in the same sinus. The first was suppurative; the second, a catarrhal sinusitis. Treatment: Ten per cent neosilvol on cotton nasal packs and exposure to infra-red light for twenty minutes, then 3 per cent ephedrine spray; repeated twice weekly, with cure over a course of two months. Irrigation should not be done for acute maxillary sinusitis of nasal origin.

Case 2. Man, aged 25, with acute sinusitis of dental origin. After extraction of a tooth he developed tinnitus, had pain and a purulent discharge from the corresponding antrum; transillumination showed cloudiness. Treatment: Repeated irrigation for a period of three weeks.

Case 3. Colored woman, aged 35, with subacute sinusitis. Treated with neosilvol and later irriga-

tions. X-ray after lipiodol injection indicated markedly hypertrophied mucous membrane. Only 1½ cc. lipiodol injected, but later 5 cc. could be injected. Intranasal operation was finally resorted to because of the empyema present.

Case 4. Man, aged 25. Pan-sinusitis with chronic empyema and hyperplasia of the mucous membrane. Had a double ethmoidectomy. Improved under irrigation.

Case 5. Polypoid sinusitis. More protracted course, often with bronchitis and bronchiectasis. This patient also had asthma. Treatment: Polyps removed, then radical antrum operation. The patient was also cured of his asthma.

Case 6. Atrophic sinusitis. The diagnosis is based upon the pathological findings after removal of tissue by radical operation.

DISCUSSION

DR. HAL FOSTER: Antrum disease is an old subject. I have found it more often in women than in men.

DR. ALBERT WELCH: Lately attention has been directed to sinus disease as a cause of many lesions in the lower respiratory tract.

DR. GILLILAND, in closing: Recently, Dr. Darling, in the *Journal of the American Medical Association*, reported the finding of pneumococci in the maxillary sinuses in 90 per cent of cases of death with pneumonia.

GALLBLADDER CASES.—By DR. T. G. ORR.

Case 1. Man, aged 50. Experienced sensation of epigastric lump after eating heavy meal two months before admission to hospital. A month later developed jaundice that was at first painless. Diagnosis, malignant lesion of common bile duct or head of pancreas. At operation the head of the pancreas was found thickened but not definitely malignant. A cholecystoduodenostomy was done.

Case 2. Man, aged 68. Suffered with epigastric cramps and vomiting, and thirty years later had chills, fever, left hypochondriac pain, and on one occasion was jaundiced. Had cholecystectomy in 1927. Exploration in 1928 revealed a dilated common duct containing ten stones. Passage of a probe into the duodenum was unsatisfactory, and on the basis of possible stricture of the common duct choledochoduodenostomy was performed. Subsequently both of these patients suffered with epigastric pain, chills, fever and sweats.

Such anastomoses have been praised in the literature and many good results reported. J. Shelton Horsley, Jr., performed the operation experimentally on nineteen dogs and at autopsy found evidence of infection in the gallbladder and liver in each instance. Deaver, at Rochester, repeated the experiment and even found multiple liver abscesses. Therefore, I question such procedures as good surgery except when absolutely necessary because of obstruction.

DISCUSSION

DR. M. J. OWEN: I believe the operation is justifiable in the presence of carcinoma of the common bile duct. The last case of my own was operated upon following injury to the common duct and has had happy results now after several years. Perhaps Dr. Orr's first case was chronic pancreatitis, but I strongly suspect malignancy even after this length of time.

A stone in the common duct is not always the

cause of pancreatitis. Recently I operated upon a woman and found evidence of acute pancreatitis, a stone in the gallbladder, and none in the common duct. I do not favor cholecystoduodenostomy as a routine procedure.

DR. L. P. ENGEL: Are there any reports in the literature after follow-up of such cases?

DR. T. G. ORR, in closing: Most authors speak about their good results but offer no follow-up data. Theoretically, the anastomosis of the gallbladder to the duodenum is better than to the stomach but, experimentally, infection seems to ascend more readily in the first instance. In neither operation is digestion or gastric acidity interfered with.

NEUROLOGICAL CLINIC.—By DR. B. LANDIS ELLIOTT.

Case 1. Man, aged 34. Ten years ago he spent six days in the battle of Argonne Forest and was knocked down three times by shell explosions. A few weeks later he would fall asleep under almost any circumstances. If anything excited him he would become weak and fall to the ground, fully conscious.

No gross focal lesion in nervous system. Differential blood count, lymphocytosis 39 per cent, which has been reported six times previously.

This syndrome was first described by Gelineau in 1880 under the name of narcolepsy. Less than fifty cases are in the literature to date. There is no record of an autopsy. One case only has been seen by a neurologist in an attack of weakness. Kinnier-Wilson found the corneal reflex and knee jerks abolished and a positive Babinski during an attack.

Case 2. Woman, aged 21. Complaint: Attacks of drowsiness and attacks in which eyelids droop, knees get weak, neck becomes limber, may fall down if she becomes angry, excited, or "if tickled." Duration, three years. Examination "negative except for exaggeration of deep reflexes." A case of Gelineau's narcolepsy.

Case 3. Ex-soldier, aged 42. While in the Army he was treated for pains in arms, legs and back, and for rapid heart action. After discharge complained of depression, insomnia, vertigo and morbid fears. Diminution in acuity of sensation over left side of body, sharply marked off by midline, including cornea, tongue and mucous membrane of the mouth. Always considered a case of hysteria.

During the past three years he has suffered from attacks which resemble normal sleep coming on several times a day, usually afternoon or evening. He is always easily awakened and feels refreshed. No attacks of weakness on emotional stimulation. This may be called a case of narcolepsy in association with hysteria, but is not the typical Gelineau variety.

Case 4. Man, aged 35. Definite attack of encephalitis four years ago. Now presents a parkinsonian syndrome, with "sleepy spells" sometimes two or three a day. A day hardly ever passes without one. A case of symptomatic narcolepsy on a basis of definite organic brain disease.

Case 5. Colored girl, aged 14. Three years ago she began having attacks of sleep, became ill tempered, wet the bed, and increased in weight until she now weighs two hundred pounds. Basal metabolic rate minus ten. X-ray shows small sella turcica. A pituitary case, posterior lobe deficiency, with narcolepsy. Slightly improved on thyroid and pituitary by mouth.

Case 6. Man, aged 54, became unconscious and fell in the street in April, 1928. Later another attack occurred, and then came headache, vomiting,

blurred vision, and somnolence which was very marked. Examination showed choked discs with fresh hemorrhages and more swelling in right eye than in left. Right frontal lobe tumor suspected. Ventriclelography showed right lateral ventricle collapsed. Operation by Dr. Frank Teachenor revealed a neoplastic process deep in right frontal lobe, not removable. Patient succumbed. Necropsy showed glioma of right frontal lobe at base encroaching on third ventricle anteriorly. Tumors in relation to the third ventricle are accompanied by somnolence in a high percentage of cases.

Case 7. (Presented to Jackson County Medical Society by Dr. Harry Berger.) Boy, who had hydrocephalus suffered from attacks of somnolence—another instance of organic brain disease with narcoleptic phenomena.

The above cases illustrate narcoleptic attacks with and without organic changes to account for them. Possibly those accompanied by organic brain disease point to the importance of the structures at the base and about the third ventricle in relation to this subject. Explanation on a physiological basis at this time would seem impossible because we know so little about the physiology of sleep.

DISCUSSION

DR. A. L. SKOOG: In such cases there is always the question as to whether the condition present is functional or organic. In many cases there is probably no malingering, yet also no pure neurosis is present. Treatment is embarrassing. I think many of these cases have their origin in some obscure infection and can be classified as encephalitis.

DR. P. M. ISENBERGER: Concerning the mechanism of sleep, in recent German literature there is a report of the phenomena of sleep and wakefulness in experimental animals whose cortices have been removed. An interesting finding is that when calcium is injected into the tuber cinereum the animal may sleep for two hours, and if potassium is administered it awakens at once. In hypnotically induced sleep there is a fall in blood calcium and relative increase in potassium except when the thalamus has been removed. One investigator claims that barbituric acid derivatives cause depression, especially at the red nucleus. Possibly the hypothalamic region may be involved in the production of sleep.

DR. ELLIOTT, in closing: Apparently there are two mechanisms active in the production of sleep, the cortical and the subcortical. Theories advanced are the toxic, the breaking of synapsis and Von Economo's theory that the region of the third nucleus controls sleep.

WOMAN'S AUXILIARY

OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.
President-Elect, Mrs. A. W. McAlester, Kansas City.
1st Vice President, Mrs. U. J. Busiek, Springfield.
2nd Vice President, Mrs. James F. Owens, St. Joseph.
3rd Vice President, Mrs. H. C. Brashear, Mexico.
4th Vice President, Mrs. L. G. McCutchen, St. Louis.
Corresponding Secretary, Mrs. C. M. Sneed, Columbia.
Recording Secretary, Mrs. David S. Long, Harrisonville.
Treasurer, Mrs. R. C. Haynes, Marshall.
Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spiyy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schauffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

Fifth Annual Meeting, Springfield,
May 14-15, 1929

The Fifth Annual Meeting of the Woman's Auxiliary to the Missouri State Medical Association was called to order Tuesday, May 14, 1929, in the Colonial Hotel, Springfield, at 10:30 a. m. and plans for the meeting were discussed. At 12:30 p. m. a luncheon was given by the Greene County Auxiliary, and a delightful musical program was given by Harry Bruton, son of Dr. T. S. Bruton, Mrs. Handley, wife of Dr. W. E. Handley, and Miss Nell Ross.

The Executive Board met in Maxwell's Ontra at 2:30 p. m. The meeting was called to order by the first vice president, Mrs. Harry F. Parker, Warrensburg.

The following were present: Mrs. Willard Bartlett, St. Louis, President; Mrs. M. P. Ravenel, Columbia, President-Elect; Mrs. Harry F. Parker, Warrensburg, First Vice President; Mrs. T. O. Klingner, Springfield, Second Vice President; Mrs. James F. Owens, St. Joseph, Fourth Vice President; Mrs. David S. Long, Harrisonville, Recording Secretary; Mrs. C. M. Sneed, Columbia; Mrs. Frank Hinchey, University City; Mrs. S. F. Freeman, Springfield; Mrs. H. C. Brashear, Mexico.

The President briefly reviewed the work of the past year. She told of receiving a letter from Mrs. Allen H. Bunce, Atlanta, asking her opinion as President of the Missouri Auxiliary on the advisability of contributing one dollar registration fee at the annual meeting at Portland to help finance our national journal, which cannot be done on twenty-five cents per capita membership. Mrs. Bartlett had sent her approval of the plan and asked for an expression of opinion from the Board.

Mrs. Carroll Smith moved that the Auxiliary favor the \$1.00 registration fee at the convention of the A. M. A. Auxiliary in Portland. Seconded by Mrs. Frank Hinchey and carried.

The Treasurer, Mrs. W. H. Goodson, being absent, her report was read by the Secretary.

Mrs. Harry P. Parker, Chairman of the Year-Book Committee, reported that the Year-Book was published during the summer of 1928 and contained much valuable information of interest to physicians and their wives.

Mrs. M. P. Ravenel presented her plan for the establishment of a scholarship fund for deserving premedical students of the University of Missouri, and moved its adoption. It was seconded and enthusiastically carried.

MINUTES OF THE GENERAL MEETING Colonial Hotel, Tuesday, May 15, 1929—9:30 a. m.

The General Meeting was called to order by the President, Mrs. Willard Bartlett, St. Louis, who opened the meeting with prayer.

The Address of Welcome was delivered by Mrs. Paul F. Cole, Springfield. The response to the Address of Welcome, prepared by Mrs. W. T. Martin, Albany, was read by the President, Mrs. Bartlett,

who explained that after starting to Springfield Mrs. Martin had been stopped by the high water and forced to turn back.

Since the minutes of the Fourth Annual Meeting had been published in the September, 1928, *STATE JOURNAL*, Mrs. C. H. Dixon moved that the reading of the minutes be dispensed with. Motion carried.

The following committees were appointed by the President:

Committee on Resolutions: Mrs. A. W. McAlester, Mrs. J. F. Owens, Mrs. C. H. Dixon.

Committee on Credentials: Mrs. C. W. Thierry and Mrs. W. C. Cheek.

The Treasurer, Mrs. W. H. Goodson, being absent, her report was read by Mrs. C. H. Suddarth.

In the absence of Mrs. Theodore P. Brookes, Corresponding Secretary, the following report was read by the Recording Secretary:

REPORT OF CORRESPONDING SECRETARY

Being away all summer and until late in the fall, the work on the Year-Book went on without any assistance from the corresponding secretary. Later in the winter a list of about four hundred names of physicians' wives who were not members of the Auxiliary, was made. This list was used in mailing the Year-Book.

During Mrs. Bartlett's absence several requests for the Year-Book came in which were attended to; also a few letters were answered.

MRS. THEODORE P. BROOKES,
Corresponding Secretary.

Mrs. C. W. Thierry read the report of the Hygeia Chairman, as follows:

HYGEIA REPORT

There were 175 letters written; 142 yearly and 2 monthly subscriptions to Hygeia received; greetings were sent to all Hygeia Chairmen of county auxiliaries. A circular was mailed announcing a state Hygeia contest for individual auxiliary women, the prize being a fur neck piece. Mrs. W. J. Hansen, St. Joseph, was the winner.

I was unable to be present at the meeting of the Parent-Teachers' Association at Trenton in October, but Mrs. A. B. McGlothlan with the assistance of Miss Ferguson, kindly took charge of the Hygeia exhibit.

At the meeting of the State Teachers' Association held in Kansas City in November, the Hygeia exhibit was under the care of the Health Conservation Association assisted by Mrs. R. McE. Schauffer.

I wrote to the State Tuberculosis Association and to the three field nurses to help me get Hygeia in every county in Missouri. I also wrote the rural supervisors urging them to see the county superintendent of their districts and try to get Hygeia in every county.

I requested the State Educational Department to have an article in their monthly bulletin telling that it was legal to use county tuberculosis money to place Hygeia in schools. The Tuberculosis Association published this in their bulletins.

I mailed 86 circular letters recommending Hygeia to teachers, rural supervisors, superintendents and tuberculosis field nurses.

I recommended working with the State Tuberculosis Association, rural supervisors of schools, and county superintendents, and that a Hygeia exhibit be placed at the annual meeting of county superintendents.

MRS. W. T. MARTIN,
Hygeia Chairman.

In the absence of the Chairman of Education, Mrs. H. C. Brashear read the following report:

I represented the Auxiliary at the State May Day conference called by the State Board of Health in March.

I would recommend (1) that we continue our educational program in cooperation with the State Board of Health and other health agencies and the extension of Hygeia; (2) the appointment of a committee to submit plans for issuing News Letters quarterly because the *STATE JOURNAL* does not reach all members; (3) the appointment of a member by each county medical society to advise with the Auxiliary; (4) outline a yearly program by each Auxiliary to be sent to each member at the beginning of the year; (5) the wives of the president and the president-elect of the State Medical Association to be special guests at all social functions; (6) that our members accept appointments in other organizations or committees to promote health educational programs.

BLANCHE E. C. HOPKINS, M.D.,
Chairman of Education.

Mrs. Willard Bartlett, President, read her report as follows:

PRESIDENT'S REPORT

This is our Fifth Annual Meeting, and as such becomes a milestone. It is for me a very happy chance that brings us back to Springfield, where the Auxiliary had its inception five years ago, and with which I have such pleasant memories and associations. The contrast of addressing the seven Springfield women who had assembled on the mezzanine of this same hotel in response to the call of Dr. Delzell, president of the Greene County Medical Society, to hear the new idea of the Auxiliary presented to them, and addressing this splendid, crowded meeting of eager women from all corners of the state, is great indeed, and in it I feel repaid for my work of the past five years. In retrospect I am appalled at my timidity but I have never doubted the worth of the idea or its ultimate success.

I want to take this occasion to thank those few Springfield women for their graciousness to me at that early difficult time, and to the present chairman and members of the local committees who have made the delightful arrangements for this meeting. We have now met often enough to look forward each year eagerly to seeing again the women from different parts of the state with whom our common interests form a natural bond, and to welcoming new arrivals.

The Annual Meeting is the place at which one visualizes the aims of the Auxiliary and catches the spirit of goodwill that actuates it. As my message to you was contained in the resume in the Year-Book which I hope you have read, I will take advantage of this time to report on my work for the year. Leadership is not measured by what the chief officer may or may not have done personally, but by the number who have contributed and what all together have accomplished.

For this the additional reports of state chairmen and county presidents are necessary. However, it must be kept in mind that in a state organization whose board convenes only immediately preceding and following the Annual Meeting, and where there is no paid executive, the president is virtually the executive secretary, or is forced to act as such, if the program is to be kept moving during the year, and if the emergencies that arise are to be adequately met.

I have filled numerous speaking engagements and attended a number of conferences with various organizations.

Year-Book

This report on the Year-Book is supplementary to that of Mrs. Harry F. Parker, Chairman of the Year-Book Committee, and at her request.

Feeling that my task of organizing the Auxiliary would not be complete without crystallizing the records of the past four and one half years, and assembling a state roster in the convenient form of a Year-Book, as adopted at the Columbia meeting, bids were secured from firms in St. Louis and in the state, ranging from \$185 to \$600, the contract going to the Carondelet News Printing Company, St. Louis. The Auxiliary was to be under no expense in case there were no profits. We received without cost, except that of tremendous labor, 2300 Year-Books, which have been sent to members of the Auxiliary, presidents of other state auxiliaries, members of the National Board and officers of the National Auxiliary, to the individuals who sent messages for the Year-Book, to the president or secretary, and his wife, of all county medical societies where no auxiliary had been formed, and to special lists of women who were eligible but had never joined their local auxiliaries. There are remaining 90 copies. The total cost of mailing was \$43.96. Our percentage on the advertising was \$10.00.

I wish to express special thanks to the counties that cooperated in securing advertising and to Mrs. French K. Hansel, Mrs. Theodore P. Brookes, and Mrs. L. G. McCutchen.

Two new counties, Linn and Jasper, have been organized during the year, making 36 counties on the mailing list. The total pieces of mail numbered 3907, as follows: Year-Books, 2210; letters, 734; postcards, 963.

I wish to express my sincere thanks to the Leppert-Roos Fur Company, St. Louis, for donating a fur neck piece for our State Hygeia prize, and to our splendid chairmen of the various divisions of work, to the members of the board and county auxiliaries, whose splendid work has gone to making up our state contribution this year. I also bespeak for the incoming president, to whom I pass on the responsibility for the organization's continued growth and well-being, the same fine forbearance and loyalty that you have shown to me.

In completing this fifth year, I find that my greatest satisfaction, after the splendid work that I know to have been done in the county auxiliaries, under the chairmen of standing committees, and under their local leaders, which they will report, is in the fact cited by Dr. W. A. Clark, Jefferson City, in his message in the Year-Book, that we have avoided the pitfalls into which many thought the Auxiliary might fall. May I add, in behalf of those who have served you in the past five years, that this harmony will continue so long as the spirit of the constitution is emphasized, self-seeking is absent, and the formula that the return for evil is good, is appreciated for its practical results.

Mrs. A. W. McAlester gave the report of the Legislation Committee. She stated that she had cooperated with the Auxiliary adviser, Dr. Herman E. Pearse, Kansas City, and had written many letters.

Mrs. M. P. Overholser, Chairman of the Revision Committee, being absent, her report was read by Mrs. McGlothlan. Several amendments to the Constitution and By-Laws were adopted and the proposed revision read.

Mrs. Harry F. Parker, Chairman of the Year-Book Committee, read her report as follows:

I sent out thirty-four letters to the presidents of county auxiliaries asking for advertisements for the Year-Book. This does not include St. Louis City and St. Louis County which were taken care of, and Johnson County of which I am president. I received ten responses, four with one-fourth page advertisements. The counties which responded were: Saline County, \$10; Gentry County, \$5; Johnson County, \$5; Clay County, \$5; making a total of \$25. Other counties that responded to Mrs. Bartlett are St. Louis City, Greene and Cape Girardeau.

Mrs. James A. Dickson moved that a telegram of greeting be sent to Mrs. W. E. Fischel, St. Louis, the honorary president of the St. Louis Auxiliary, who is at present ill. The motion was seconded and carried.

Mrs. W. C. Cheek, Springfield, reported for the Credentials Committee that the total number registered was 76; organized counties represented, 13; unorganized counties represented, 9; county presidents, 9; accredited delegates, 10; guests, 50; state officers and directors, 16; total number entitled to vote, 26.

REPORT OF NOMINATING COMMITTEE

Mrs. Frank Hinchey read the report of the Nominating Committee as follows:

Officers

President-Elect, Mrs. A. W. McAlester, Kansas City.
First Vice President, Mrs. U. J. Busiek, Springfield.
Second Vice President, Mrs. J. F. Owens, St. Joseph.
Third Vice President, Mrs. H. C. Brashear, Mexico.
Fourth Vice President, Mrs. L. G. McCutchen, St. Louis.
Recording Secretary, Mrs. David S. Long, Harrisonville.
Treasurer, Mrs. R. C. Haynes, Marshall.
Auditor, Mrs. C. T. Ryland, Lexington.

Directors for Two Years

Mrs. W. W. Ford, Gordonville.
Mrs. Harry F. Parker, Warrensburg.
Mrs. F. H. Spencer, St. Joseph.
Mrs. C. C. Cummings, Joplin.
Mrs. Raymond Spivy, St. Louis

Respectfully submitted,
MRS. FRANK HINCHEY, Chairman.

Mrs. Suddarth moved that the report of the Nominating Committee be adopted. The motion was seconded by Mrs. Dickson and carried.

Mrs. A. B. McGlothlan moved that the nominating ballot be made the elective ballot and the recording secretary be instructed to cast the ballot for the officers. Seconded and carried.

Mrs. M. P. Ravenel, Columbia, President-Elect, presented the following:

Madam President and Members of the Executive Board: I desire to present to you a plan on the carrying out of which I have set my heart. In it I see an opportunity for the constructive work without which no organization can grow and prosper. In it I see an opportunity for following the ideals which the profession of medicine has impressed upon us individually and collectively. Lastly, I see in it an opportunity for real service where it is much needed.

In the School of Medicine of the University of Missouri only two years of the course necessary for the degree of Doctor of Medicine are provided. This means that the last two years must be spent at some other school. Each year it becomes more difficult to find medical schools to which these students can gain admittance, since all schools have found it necessary to limit the size of classes.

In the School of Medicine of the University of Missouri there are always worthy students who are making great efforts financially to obtain their education. The tuition fees of schools of medicine are a grave consideration, as are the expense of travel, the cost of living, books and clothing, all of which must be met, and cheerfully met, for no good work can be accomplished if the student is harassed by debt.

Therefore, knowing the necessities of these students, often brilliant and always hard working, I make the following motion:

That the Women's Auxiliary to the Missouri State Medical Association, now in session, found a scholarship in the sum of five hundred dollars annually, this scholarship to be given for two successive years to a student graduating from the Medical School of the University of Missouri, who by character, scholarship and financial condition is judged most worthy.

The motion was seconded and carried unanimously.

Mrs. Freeman moved that the Auxiliary raise the scholarship fund by popular subscription from the county auxiliaries and whatever deficit may occur be taken from the state treasury. The motion was seconded. A rising vote gave 6 votes in favor of motion. Opposed 12. Motion lost.

Mrs. W. M. Bickford moved that we recommend to the incoming Board that a committee be appointed to work out the details of the scholarship fund. Seconded and carried.

The following were elected as members at large: Mrs. W. H. Breuer, St. James; Mrs. H. M. Grace, Chillicothe.

The report of the Resolutions Committee was read by Mrs. J. F. Owens, as follows:

REPORT OF RESOLUTIONS COMMITTEE

The Resolutions Committee submits for your approval the following:

1. That our sincere and deep appreciation and thanks be tendered our outgoing President, Mrs. Willard Bartlett, and the other retiring officers and directors, for their efficient work of the past year and especially valuable service in formulating the program for this meeting, which brought to us the informing and inspiring addresses from Dr. J. H. J. Upham, Columbus, Dean of Medical School of Ohio University, and Trustee of the American Medical Association; the President of the State Medical Association, Dr. Frank L. Ridge, Kansas City; Dr. T. W. Cotton, the President-Elect, and Mrs. George H. Hoxie, Kansas City.

2. That words are inadequate to express our thanks to the Greene County Auxiliary, Mrs. Paul F. Cole, its president, and her co-workers for their gracious hospitality extended to the State Auxiliary and for the admirable arrangements devised for our pleasure and entertainment. We regret the weather conditions have prevented many from attending and enjoying this meeting. We pledge our cooperation and support to the incoming officers and hope for a very successful administration.

Respectfully submitted,
MRS. J. F. OWENS, Chairman.
MRS. J. A. DICKSON.
MRS. A. W. McALESTER.

On motion the report was adopted.

The President, Mrs. Willard Bartlett, read her recommendations and asked for their approval by rising to adjourn.

Recommendations

1. That we continue our present educational program of cooperation with the State Board of Health and other great health agencies of the state and for the extension of Hygeia.

2. Feeling that the STATE JOURNAL does not reach the members of the Auxiliary and that communication of information to them personally is necessary, I recommend that a committee be appointed to work out the details of editing and publishing a news letter to be issued quarterly, financed by paid advertising, to carry condensed reports of the annual meetings, work of special chairmen, Auxiliary news, and notice of state meetings and other pertinent information. This committee can also provide for the column in the STATE JOURNAL. I suggest the name "The Periscope, News Letter of the W. A. to the M. S. M. A."

3. At the request of the National Auxiliary, I recommend that each county auxiliary request its local medical society to appoint an adviser or advisory committee.

4. That the county auxiliaries be advised to outline their year's program and send it to the membership at the beginning of the year.

5. That the wives of the president and president-elect of the State Medical Association be invited to all social functions at the Annual Meeting.

6. That the auxiliaries feel individual responsibility for their share in the scholarship fund voted in this meeting to establish, as other funds in the treasury are not available for this purpose.

LUNCHEON, WEDNESDAY NOON, MAY 15, 1929

At 12:30 p. m. the Auxiliary met in the Colonial Hotel for their annual luncheon. The invocation was given by the Reverend A. J. McClung, Springfield.

Following the luncheon the meeting was called to order by the President, Mrs. Bartlett, who expressed appreciation for the loyalty and devotion of the Auxiliary members during the past year.

She then introduced Mrs. M. P. Ravenel as the gracious hostess of last year and the new president of the Auxiliary. The audience rose and applauded Mrs. Ravenel who in a few words expressed appreciation for the honor shown her, for the hospitality of the Greene County Auxiliary and for the privilege of establishing the Scholarship Fund that is so dear to her heart. She asked for continued support from the new Board, and thanked Mrs. Bartlett for her gracious sympathy and friendliness.

Mrs. Bartlett introduced Dr. J. H. J. Upham, Columbus, Ohio, Dean of Ohio State University School of Medicine, and Trustee of the American Medical Association, who addressed the meeting.

Dr. Frank I. Ridge, Kansas City, President of the Missouri State Medical Association, brought greetings from the Association, and Dr. T. W. Cotton, President-Elect of the State Association, extended good wishes for continued growth and development.

Dr. H. E. Kleinschmidt, of New York City, director of health education of the National Tuberculosis Association, was introduced and gave a very splendid talk on the prevention of tuberculosis.

MEETING OF THE EXECUTIVE BOARD

The new Executive Board met following the luncheon, the President, Mrs. M. P. Ravenel, presiding.

Mrs. Harry F. Parker moved that Mrs. Ravenel be given authority to appoint a committee to work out the details of the scholarship fund. The motion was seconded and carried.

Mrs. Parker moved that the president notify the county auxiliaries of the scholarship plan. The motion was seconded by Mrs. Brashear and carried.

Mrs. A. B. McGlothlan moved that a quota committee be appointed to suggest quotas to county auxiliaries for the scholarship fund. Motion seconded by Mrs. Bartlett and carried.

The president appointed the following on this committee: Mrs. W. M. Bickford, Mrs. Harry F. Parker, Mrs. A. W. McAlester, Mrs. David S. Long.

Mrs. H. M. Bickford announced the committee would meet in Sedalia on Thursday, May 29, 1929, at 12:00 noon at the Country Club.

Mrs. Willard Bartlett moved that Executive Council take under consideration the matter of publishing a news sheet. The motion was seconded and carried.

Mrs. Bickford moved the President-Elect continue as chairman of organization. The motion was seconded by Mrs. McGlothlan and carried.

Mrs. McGlothlan moved that a revision committee be appointed to work over the revised constitution. Seconded and carried.

Mrs. McGlothlan moved that Mrs. M. P. Overholser, St. Joseph, be continued as chairman of the Revision Committee. Seconded and carried.

On motion adjourned.

Following the meeting of the Executive Board the members and guests of the Auxiliary were taken by motor car to the beautiful home of Dr. and Mrs. T. O. Klingner where they were delightfully entertained with a musical tea.

MRS. DAVID S. LONG,
Recording Secretary.

NOTES

Scholarship Fund

Contributions to the Scholarship Fund have been received as follows:

DATE	COUNTY	AMOUNT
June 2.....	Johnson	\$50.00
June 15.....	St. Louis	9.50
June 17.....	Boone	25.00
June 17.....	Saline	25.00
July 12.....	Cole	7.20
July 18.....	Cass	11.20
July 24.....	Linn	6.40
August 6.....	Boone (special gift).....	17.00

Total\$151.30

COTTONSEED AND KAPOK SENSITIZATION

A brief study made by Grafton Tyler Brown, Washington, D. C. (Journal A. M. A., Aug. 3, 1929), of the tabulated data on the thirteen patients sensitive to cottonseed shows that the sexes were almost equally involved, namely, seven males and six females. The age of the patients varied from 3 to 49 years. As to the age of onset of the allergic symptoms, although it is not given in the table, nine started in the first decade, two in the second, and two in the third. As for the allergic manifestations, eleven of the patients had bronchial asthma, and the remaining two perennial hay-fever. Six of the eleven patients with asthma also had coryza, eczema, urticaria or angioneurotic edema. Brown asserts that sensitization to cottonseed and kapok is usually marked, and occurs with sufficient frequency to merit careful consideration, although little attention has been paid to it in the extensive literature on allergy. The ingestion of cottonseed products, or the inhalation of dust from cotton or kapok, is capable of causing asthma and other allergic manifestations in persons hypersensitive to these substances. Cottonseed and kapok sensitization may be determined with ease and safety by means of the cutaneous or "scratch" test. The cotton plant and the kapok tree are botanically related, and persons sensitive to cottonseed are frequently, although not necessarily, sensitive to kapok. On the other hand, kapok sensitization without coincident cottonseed sensitization probably does not occur. Nearly all patients with nonseasonal allergy should be tested as a routine with cottonseed protein. Kapok pillows should never be substituted for feather ones in feather-sensitive patients, until the possibility of kapok sensitization has first been ruled out. Cottonseed and kapok hyposensitization by means of hypodermic injections of a cottonseed extract is possible, provided sufficient care and judgment are used in determining the correct initial dose, and in properly regulating the increases in dosage.

HANDICAPPED NEED SPECIAL TEACHING

Teaching children with physical handicaps is a highly specialized branch of educational work that has received little attention in the past. Through

the efforts of certain propaganda organizations that have presented the needs of the semiblind, the deafened, the pretuberculous and the post-tuberculous child to the educators, profitable work is now being done.

Dr. Hugh Grant Rowell explains in an article in the school issue of *Hygeia* some of the objectives of this movement and points out certain needs that must be met before the handicapped child receives what belongs to him educationally.

Mental and physical health is the prime objective. Special classes for certain types of handicapped children are widely used and have done excellent work. They have the disadvantage of depriving the children of contact with normal life, however, and the latest trend is to teach only special subjects in the segregated classes, the other subjects being taken with normal children. For instance, deafened children have special classes in lip-reading and are able to use it in actual contact with those of normal hearing in their other classes.

Trained teachers are among the most serious needs, Dr. Rowell states. At present few training schools provide any courses dealing with these special problems. Research in teaching methods will be necessary to determine the value of procedures, and another striking need is the study of the psychology of the handicapped.

MISCELLANY

AIR GROUND CODE OF RED CROSS

For the information of our members we reproduce herewith the air ground message code of the American National Red Cross for disaster relief. Members desiring copies of this code may obtain them by addressing the Secretary of our Association or the American National Red Cross, St. Louis, Missouri.

APPENDIX 4

AMERICAN NATIONAL RED CROSS

DISASTER RELIEF

AIR-GROUND MESSAGE CODE

AIRPLANE TO GROUND

Short blasts from airplane engine; airplane also making circles over town.

AIRPLANE SIGNALS

1. Do You Need anything - 5 short blasts, repeated three times.
2. Message Not Understood, Repeat - 2 short blasts, repeated three times.
3. Message Understood, Await Our Return - 3 short blasts, repeated three times.
4. Stand by for a Drop Package - 4 short blasts, repeated three times.

GROUND TO AIRPLANE

1. Use cloth strips, 12 feet long and 2 feet wide, to make code letters.
2. Use black cloth on snow and white cloth on bare ground.
3. Place letters in an open lot, away from buildings; spread out flat on ground, and hold corners down with rocks.
4. Place each letter 20 feet apart and then stand away from letters about 50 feet so that pilot can see them.
5. If entire area flooded best means available must be utilized for showing signals on water.
6. Local Red Cross Chapter should place 3 men in charge of this work, with instructions to keep constantly on watch for airplanes during daylight hours, and immediately to put out cloth upon signal from airplanes. Every precaution must be taken to safeguard use of code so that unauthorized messages may not be sent.

GROUND SIGNALS

1. Message Understood, Wait - A
2. Message Not Understood, Repeat - E
3. We Need Nothing - F
4. End of Message - H
5. General information for Red Cross headquarters (use Roman numerals for showing numbers - see list of Roman numerals below):

Persons killed	K
Persons injured	N
Persons homeless	O
Residences destroyed	T
Residences damaged	Y

6. We Need (use Roman numerals to indicate number of persons for whom supplies are needed):

Food and Drink

Bacon	AA	Chocolate - sweetened	AN	Sugar	EE
Beans	AE	Coffee	AO	Tomatoes - canned	EF
Beef - corned	AF	Milk - dried - powdered	AT	Water, drinking	EH
Bread	AH	Oranges	AY	Feed for horses	EM
Butter	AK	Salt	EA	Feed for cows	EN

Clothing

Outer Clothing	FA
Under Clothing	FE
Boots and Shoes	FF
Layette	FH

Shelter

Blankets	FK
Tents	FN
Composition Roofing	FO

6. (Continued)

Drugs and Medical and Surgical Supplies

Adrenalin, Tablets	HA	Iodine, Tincture of	NO
Alcohol, Ethyl, Liquid	HE	Lime, Chloride of	NT
Ammonia, Aromatic Spirits of	HF	Magnesium Sulphate, Powder	NY
Ammonium Chloride, Liquid	HH	Mercuriochrome, Powder	OA
Argyrol, Liquid	HK	Miscellaneous Drugs	OE
Aspirin	HN	Morphine Sulphate, Tablets	OF
Bismuth, Subnitrate, Liquid	HO	Petrolatum, Semi-solid	OH
Boric Acid, Powder	HT	Plaster, Adhesive, Bandages	OK
Celomel, Tablets	HY	Potassium, Permanganate, Powder	ON
Capsules, Gelatine, Tablets	KA	Quinine, Powder	OO
Carbolic Acid, Liquid	KE	Serum, Diphtheria Anti-toxin, Ampules	OT
Carron Oil	KF	Serum, Scarlet Fever Anti-toxin, Ampules	OY
Cascara Sagrada, Liquid	KH	Sodium Bicarbonate, Tablets	TA
Castor Oil, Liquid	KK	Sodium Bicarbonate st Menthae Pip. Tablets	TE
Chloroform, Liquid	KN	Sodium Bromide, Powder	TF
Compound Cathartic Pills, Tablets	KO	Surgical instruments - Simple Operating Case	TH
Cotton, Absorbent, Rolls	KT	Syringe, Hypodermic, Regular	TK
Crenolin	KY	Syringe, Large, for giving vaccines	TN
Crenolin, Bandages	NA	Thymol iodide (Aristol) Powder	TO
Digitalis, Tincture, Liquid	NE	Vaccine, Scarlet Fever, Ampules	TT
Ether, Liquid	NF	Vaccine, Smallpox, Ampules	TY
Gauze, Bandages, Rolls	NH	Vaccine, Tetanus Anti-toxin, Ampules	YA
Gauze, Sterile, Rolls	NK	Vaccine, Typhoid, Triple, Bottles	YE
Hospital facilities for (show number of persons)	NN	Zinc Ointment, Ointment of	YF
		Zinc Oxide, Powder	YH

Personnel

Relief Director	YK
Doctors	YN
Nurses	YO

Miscellaneous

Matches	YT
Candles	YY
"Sterno"	AAA

7 Roman Numerals

- 1 - I
- 5 - V
- 10 - X
- 50 - L
- 100 - C
- 500 - D
- 1,000 - M

The Roman numeral should be shown first, if several different kinds of supplies are needed for the same number of persons, the Roman numeral should be shown only once before the signals for the supplies.

INSTRUCTIONS FOR USING CODE LETTERS

Sample Message

"100 persons homeless. We need bread for 200 persons and miscellaneous drugs for 1000 persons."

Put down letter C, leave it on the ground until the plane has made a complete circle. Take up letter C, and put down letter O. Remove letter O as soon as the plane has made a complete circle. Put down letters CC. Remove them as soon as plane has made a complete circle. Put down letters AH. Remove them as soon as the plane has made a complete circle. Put down letter M. Remove it as soon as the plane has made a complete circle. Put down letters OE. Remove them as soon as the plane has made a complete circle. Put down letter H (end of message).

SAMPLE CODE LETTERS - AEFHKNOTY

SAMPLE ROMAN NUMERALS I V X L C D M

PLEASE DO NOT LOSE THESE INSTRUCTIONS AND CODE. THEY SUPERSEDE ALL PREVIOUS ONES, WHICH SHOULD BE DESTROYED.

This code is an adaptation to general purposes of one worked out in an actual disaster situation by the Air Corps of the United States Army, and should be used by Red Cross Chapters when it is necessary to communicate with airplanes in time of disaster.

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TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

LENIGALLOL.—Triacetylpyrogallol. —Lenigallol is said to be nonpoisonous and nonirritating, but it produces a mild and painless corrosive effect by the gradual liberation of pyrogallol. It is used as a substitute for pyrogallol in psoriasis, lupus, acute and subacute eczema of children and other skin diseases. E. Bilhuber, Inc., New York.

SOLUTION BISMUTH SODIUM TARTRATE.—Searle, 1.5 per cent.—An aqueous solution containing bis-

muth sodium tartrate—Searle (Jour. A. M. A., June 30, 1928, p. 2103) 0.015 Gm., benzyl alcohol 0.02 Gm., and sucrose 0.25 Gm., in one cc. G. D. Searle & Co., Chicago. Jour. A. M. A., April 6, 1929, p. 1181.)

MAGNESIA.—Mineral Oil (25) Haley.—A mixture composed of liquid petrolatum, U. S. P., 1 part by volume; magnesia magma, U. S. P., 3 parts by volume. It is used as a lubricant in the intestinal tract for promoting evacuation of the bowel and as an antacid for the gastro-intestinal canal. The Haley M.-O Co., Inc., Geneva, N. Y.

SULPHARSPHENAMINE.—Searle.—A brand of sulpharsphenamine—N. N. R. (New and Nonofficial

Remedies, 1928, p. 81). It is supplied in 0.4 Gm., 0.5 Gm. and 0.6 Gm. ampules. G. D. Searle & Co., Chicago.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (Diphtheria Prophylactic).—A diphtheria toxin-antitoxin mixture (New and Nonofficial Remedies, 1928, p. 366), each cc. representing 0.1 L.+dose of diphtheria toxin neutralized with the required amount of antitoxin. It is marketed in packages of three 1 cc. vials, in packages of one 15 cc. vial; in packages of one 30 cc. vial, and in packages of thirty 1 cc. vials. National Drug Co., Philadelphia. (Jour. A. M. A., April 20, 1929, p. 1349.)

LIOIODINE-CIBA (New and Nonofficial Remedies, 1928, p. 215).—In the form of Lioiodine-Ciba, Diagnostic, it is used as a contrast medium in the localization of bronchial and pulmonary lesions, as a diagnostic aid in gynecology and myelography, for detecting urethral strictures, and in cavities where intensification of the roentgen ray shadows is desired. The dosage for diagnostic work is from 5 to 20 cc. of Lioiodine-Ciba, Diagnostic, as determined by the extent of the field to be investigated. Ciba Co., Inc., New York.

LIOIODINE-CIBA DIAGNOSTIC.—A 60 per cent solution of Lioiodine-Ciba (New and Nonofficial Remedies, 1928, p. 215) in sesame oil. Ciba Co., Inc., New York.

AMPULES LIOIODINE-CIBA DIAGNOSTIC, 5 cc.—Each ampoule contains 5 cc. of a 60 per cent solution of Lioiodine-Ciba (New and Nonofficial Remedies, 1928, p. 215) in sesame oil. Ciba Co., Inc., New York.

ACIDOPHILUS BACILLUS LIQUID—Mulford.—A whey culture of *B. acidophilus* (Moro) in a whey medium, which contains 50 million viable organisms per cc. at the time of sale. For a discussion of the actions and uses of bacillus acidophilus preparations see Lactic Acid Producing Organisms and Preparations, New and Nonofficial Remedies, 1928, p. 228. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., March 2, 1929, p. 723.)

DIAL-CIBA.—Diallylbarbituric acid.—Dial-Ciba differs from barbital (diethylbarbituric acid) in that both of the ethyl groups of the latter are replaced by allyl groups. The actions and uses of Dial-Ciba are essentially similar to those of barbital, but Dial-Ciba is more active than barbital and it is used in correspondingly smaller doses. Fractional doses are used as a sedative and larger doses as a hypnotic. The hypnotic action is induced within one-half to one hour. As a sedative the dosage is 0.02 to 0.04 Gm. two or three times daily; as a hypnotic 0.1 to 0.3 Gm. one-half to one hour before sleep is desired. The product is supplied in powder, in Tablets Dial-Ciba, 0.1 Gm. and as Elixir Dial-Ciba containing 0.05 Gm. per 4 cc. Ciba Co., Inc., New York. (Jour. A. M. A., March 23, 1929, p. 983.)

PROPAGANDA FOR REFORM

REDUC-IT, A Nostrum for Reducing High Blood Pressure.—The Denver Research Laboratory of Denver, Colo. put out a preparation which, it was claimed, would reduce high blood pressure. It was called "Reduc-it." It was claimed that the preparation would "Prevent apoplexy, paralysis, Bright's disease, rheumatism, eczema, boils, pimples and many other diseases caused from high blood pressure and impure blood." The post office authorities have issued a fraud order excluding the Denver Research Laboratory from the use of the mails. The "Denver Research Laboratory" was not a laboratory at all. It was a trade name adopted by one Gilliard W.

John, who conducted the business from a "one-room-and-bath apartment" occupied by himself and his wife. The preparation, Reduc-it, was made up of equal parts of cream of tartar, epsom salt and magnesium carbonate. (Jour. A. M. A., March 2, 1929, p. 743.)

THE NINHYDRIN TEST IN PREGNANCY.—The Abderhalden Ninhydrin test for pregnancy has fallen into disrepute. There is no evidence that a specific ferment exists in pregnancy. While tests on serum from pregnant women are uniformly positive, the large number of positive results on the serum of men and nonpregnant women proved the test of no value for the diagnosis of pregnancy. (Jour. A. M. A., March 9, 1929, p. 829.)

J. BAPTIST BUTTS, Another High-Blood-Pressure Specialty.—A two-page letter printed in imitation typewriting asked the recipient to read Dr. Butts' essay on high blood pressure. It closed with the offer to send "complete directions for making the remedy" which had cured Dr. Butts, on receipt of five dollars. Dr. Butts offered to return the money if the remedy would not do what he said it would. Apparently, Dr. Butts does not confine the sale of his formula to the medical profession. One layman writes that he gave the remedy a trial with no benefit whatever and that his request for a refund was not complied with. The following is the formula of Dr. Butts' epoch-making discovery: "Take a fresh beef kidney and a pound of fresh beef liver. Cut the kidney into strips, separating the dark outside meat from the inner fatty, fibrous part. Cut into small pieces and put in a mild solution of salt water for an hour. Rinse through a collander. Cut the liver into small pieces and put it and the kidney in a double cooker, with a quart of water. Cook with as little heat as possible for three hours, being careful that the lower part of the cooker does not boil dry. Press out the liquid. If less than a quart add water to make up deficiency. When cold add enough salt to overcome the insipid taste. Then add cider vinegar until it has an acid taste. Keep in a cool place. Dose, a 2 ounce wine glassful with the juice of an orange, morning and evening." (Jour. A. M. A., March 2, 1929, p. 743.)

MOUTH WASHES AND DENTIFRICES.—Nowhere is scientific thought and even honesty more disregarded than in the pseudobiochemical propaganda inseparably connected with the exploitation of dentifrices and mouth washes. Consider for instance what advertising writers are pleased to term "acid mouth." It is well known but not often admitted in the propaganda of certain dentifrice manufacturers that the PH level of the saliva is maintained regardless of the material introduced into it. Dentifrices of both acid and alkaline nature are sold with the claims that they will correct all sorts of supposed conditions in the mouth. Many of the alkaline dentifrices, presumably designed to correct mouth acidity (which in a sense is the normal condition), are especially blatant in their announcements. If an abnormal acid or alkaline condition is present in the mouth, there is probably an underlying constitutional cause which should have the expert attention of physician and dentist. Sooner or later, manufacturers of dentifrices will have to heed the results of scientific investigation. The chief purpose of a dentifrice is to clean the teeth, or more practically, to establish a healthy habit. The balance of evidence is against the view that dentifrices can be used for so-called mouth correction. (Jour. A. M. A., March 16, 1929, p. 899.)

BOOK REVIEWS

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every month.) Volume 9, number 4. (Mayo Clinic Number—August 1929) 208 pages with 72 illustrations. Per Clinic year (February 1929 to December 1929). Philadelphia and London: W. B. Saunders Company. Price, paper \$12.00; cloth \$16.00.

This is the Mayo Clinic number and contains the report of clinics at the Mayo Clinic and the Mayo Foundation, Graduate School, University of Michigan. It contains 208 pages illustrated with numerous half-tones, charts and sketches.

QUALITATIVE AND VOLUMETRIC ANALYSIS. For Medical Students. By H. Lambourne, M.A., M.Sc., F.I.C., Head of the Chemistry Department, The Polytechnic Regent Street, W. 1, and J. A. Mitchell, M.Sc., Lecturer in the Chemistry Department, The Polytechnic Regent Street, W. 1. Humphrey Milford. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1928. Price \$1.50.

This small book of sixty pages, of which fifteen are left blank for notes, is written for medical students preparing for state board examinations. It gives in tabular form a summary of simple qualitative chemical reactions, and outlines briefly the simpler volumetric assays. The general principles of chemical calculations are given. Tables of atomic weights and logarithms appear and there is a short list of test questions for the student to review his knowledge. The book contains no reference to the customary microchemical methods in use in medical laboratories, and very few of the methods of analysis given are those for which the physician has use.

The book is neither a textbook on chemical analysis nor a laboratory guide. It would be of no value to the physician, unless he happened to be "cramming" for an examination. Mc. K. M.

THE EXAMINATION OF PATIENTS. By Nellis B. Foster, M.D., Associate Physician to the New York Hospital; Associate Professor of Medicine at Cornell University College of Medicine. Second edition, revised. Philadelphia and London: W. B. Saunders Company. 1928. Price \$4.50.

The author not only shows a wide experience in and knowledge of medicine, but also a deep understanding of human nature. It is not the usual outline form of book writing but is more of a heart to heart talk with the reader concerning his patients. The author mentions by name every disease and abnormality that should be looked for and includes also its differential diagnosis. For example, in a chest examination he explains clearly the interpretation of sounds heard through the stethoscope over the chest wall as caused by fluid, air, consolidation, cavity formation, etc. He lays great stress on the differentiation between functional and organic disturbances and gives a resume of the normal and pathological laboratory findings, including the field of blood chemistry. Brevity, simplicity, and an absolute knowledge of his subject, are the high lights of this book. It should be in the hands of every physician who is out of school long enough to appreciate good medicine. A. J. R.

CHEMISTRY IN MEDICINE. A Cooperative Treatise Intended to Give Examples of Progress Made in Medicine With the Aid of Chemistry. Edited by Julius Stieglitz, Professor of Chemistry, University of Chicago. The Chemistry Foundation, Inc., 85 Beaver Street, New York, N. Y. Price \$2.00.

This book which has been widely distributed to the medical profession is designed, so the publishers state, for the improvement of the health of your children and your children's children. It is written by forty-nine of the leading scientists of the world without compensation, in the hope of interesting the fathers and mothers of America in "sustaining the progress of the cooperation between chemistry and medicine."

It goes without saying that any physician who sees this volume cannot only gain pleasure and profit by reading it himself, but can do a great deal of good by recommending it to his nonmedical friends.

R. L. T.

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1928. Cloth. Price, postpaid \$1.00. Pp. 75. Chicago: American Medical Association, 1929.

This book is a great deal more than a mere record of the negative actions of the Council on Pharmacy and Chemistry. It gives in full the reasons for the Council's rejection of various preparations, but it also records results of the Council's investigations of new medicinal agents not yet out of the experimental stage, and frequently contains reports on general questions concerned with the advance of rational drug therapy. All three categories of reports are represented in the present volume.

Among the reports on products that have been denied admission to New and Nonofficial Remedies are those on Sanarthrit and Telatuten, two preparations of animal tissue, of indefinite composition, proposed for use in arthritis and arteriosclerosis respectively; on Clauden, a combination of lipoids and undefined proteins, proposed for use as a hemostatic; on Hart's Alimentary Elixir of Beef, a liquid medicinal food, "fortified" with glycerophosphates; on Alucol, claimed to be colloidal aluminum hydroxide and marketed under this non-descriptive name; on Oxo-Ate and Oxo-Ate B, claimed to be the ammonium and calcium salts, respectively, of arthiodoxybenzoic acid and marketed under these proprietary, nondescriptive names; on Terpezone, stated to be pinene ozonide and marketed with exaggerated and unwarranted claims; on Vitalipon, an unscientific and indefinite mixture of lipoids claimed to be extracted from "vegetable and animal embryonic organs."

Among the preliminary reports are those on Metrazol, which has now been admitted to New and Nonofficial Remedies; on Phenylaminoethanol sulphate, a newly synthesized ephedrine substitute; on Overialhormon Folliculin Menformon, the ovarian preparation originated by Dr. Laqueur, of Amsterdam; and on Heparmone, a liver preparation.

The special report dealing with dextrose solutions containing cresol and intended for intravenous administration is a noteworthy example of the third category of Council reports we have mentioned.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 9, number 2. (Chicago Number—April, 1929) 243 pages with 70 illustrations. Per Clinic year (February, 1929 to December, 1929). Philadelphia and London: W. B. Saunders Company. Paper, \$12.00; Cloth, \$16.00.

This is the Chicago number containing contributions from the clinical service in the various Chicago hospitals. It contains 243 pages and is well illustrated.

NEW AND NONOFFICIAL REMEDIES, 1929, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1929. Cloth. Price, postpaid, \$1.50. Pp. 488; xlviii. Chicago: American Medical Association.

This book offers a solution to the problem of the busy physician who is daily importuned by "detail" men to try the thousand and one new preparations brought out by enterprising manufacturers of pharmaceuticals. If the preparation in question is not described in New and Nonofficial Remedies, it is quite safe to refuse to try it no matter how alluring the salesman's talk. The book contains descriptions of those new preparations which, after painstaking examination, the Council on Pharmacy and Chemistry has found worthy of recognition and of trial by the medical profession. It is revised each year to bring it up to date with the best medical thought and to include the new preparations that have been recognized during the year as well as to delete those which have been found not to live up to their promise of therapeutic value.

In this edition there appears for the first time an article on liver preparations and their therapeutic use. The articles on ergot, metallic peroxides, pituitary gland, and radium and radium salts have been considerably revised. Among the new preparations which have been included in this edition are: diphtheria toxoid, which is the toxin of diphtheria so modified by treatment with formaldehyde as greatly to reduce its toxicity yet preserving its antitoxic power; metrazol, another proposed substitute for camphor; liver extract No. 343 and concentrated liver extract-Armour, for the treatment of pernicious anemia. Other newly accepted articles are: bismuth sodium tartrate-Searle, another water soluble bismuth tartrate preparation; scarlet fever toxin-P. D. & Co., another scarlet toxin manufactured under lease of the Scarlet Fever Commission; parathyroid hormone-Squibb, standardized by the method of J. B. Collip, and paroidin, made and standardized by the method of A. M. Hanson, both being solutions of the active principle or principles of parathyroid gland for appropriate clinical use. An important deletion is the omission of all generators charged with radium.

A new departure in this edition is a list of "exempted" articles. This comprises some hundred and thirty medicinal and non-medicinal products examined by the Council and found to be of such composition and to be so marketed as not to require acceptance or rejection by the Council under its rules.

A section of the book (brought up to date each year) gives references to proprietary articles not included in New and Nonofficial Remedies. This list, in conjunction with the book proper, constitutes a cumulative index of proprietary medicines, which physicians may consult when a proprietary product is brought to their attention. Physicians cannot dispense with the use of the newer reme-

dies that are brought out each year; yet they can neither judge them on the basis of the manufacturers' claims nor have they the time or means to determine their merits for themselves. For this reason, every physician should possess a copy of this volume, which annually puts at his disposal an authoritative, up to date, and unbiased estimate of these preparations.

THE CYTOARCHITECTONICS OF THE HUMAN CEREBRAL CORTEX. By Constantin von Economo, Professor of Neurology and Psychiatry, University of Vienna. Translated by Dr. S. Parker. Humphrey Milford. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929. Price \$6.25.

This volume is an outgrowth of a series of University lectures on the arrangement of various types of cells in the cortex of the human cerebrum. The background lies in a voluminous treatise, "Die Cytoarchitektomik der Hirnrinde des erwachsenen Menschen," a textbook and atlas, by the present author in collaboration with Dr. Koskinas, published by Julius Springer, Berlin and Vienna, 1925. The present book is a short (186 pages) concise text translated by Dr. S. Parker and beautifully illustrated with 47 microphotographs of sections of various areas of the cortex. It seems equally well designed for psychiatrists and psychologists as well as for anatomists and physiologists. At least the first two chapters on "General considerations of the cellular structure of the cerebral cortex" and the last chapter on "conclusions and future of cytoarchitectonics" should be of interest to the general student who has some conception of brain structure.

E. A.

DISEASES AND DEFORMITIES OF THE SPINE AND THORAX. By Arthur Steindler, M.D., F.A.C.S., Professor and Head of the Department of Orthopedic Surgery of Iowa State University Medical School, Iowa City, Iowa. With 76 plates. St. Louis: The C. V. Mosby Company. 1929. Price \$12.50.

It has been our privilege to know the author for a number of years so we can say that the volume truly reflects his painstakingly careful methods of preparing whatever he presents.

In the preface he states that perhaps there has been too much emphasis upon the theoretical and experimental, but in this it is hard to agree; also, that he is unalterably opposed to the idea of imparting to the busy practitioner knowledge in an easily readable form, etc., but in the reading of this work one becomes so intensely interested that he reads on and on.

There are ten chapters treating the following subjects: Congenital Deformities; The Static and Static Constitutional Anteroposterior Deformities; Scoliosis; Fracture and Dislocation Deformities; Low Back Pain; Tuberculosis; Osteomyelitis; Syphilis; Chronic Arthritis; Tumors. At the beginning of each chapter will be found an outline of its contents, while at the end is a long list of references.

The plates are very good but would make a more pleasing appearance if the separate photographs were brought to the same size. Also the patch over both eyes for disguise is better than blackening them separately.

The book is very much worth while for either the orthopedic surgeon or the general practitioner.

C. A. S.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME 26

NOVEMBER, 1929

NUMBER 11

E. J. GOODWIN, M.D., Editor
1023 Missouri Building, St. Louis, Mo.

PUBLICATION COMMITTEE { J. C. B. DAVIS, M.D., Chairman
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ORIGINAL ARTICLES

THE MODERN TREATMENT OF FRACTURES*

PHILIP D. WILSON, M.D.

BOSTON

Recent years have witnessed a great increase of interest on the part of the medical profession in the subject of fractures. Many factors have contributed to this result among which may be mentioned: first, the new interest and knowledge of fractures gained by many physicians from their experience in the casualty laboratories of the Great War; second, the greater importance of industrial injuries brought about by the functioning of the state industrial compensation laws, and the attention which these have focused on end results; third, the ever increasing occurrence of automobile accidents creating casualties not only in the large cities but also in rural communities where such injuries were formerly rare, and finally, a growing sense of the physician's responsibility in treating fractures, in part inspired by the frequency with which fracture cases have furnished the basis of malpractice suits. It has become increasingly apparent that the treatment of fractures is not a simple problem but one that demands experience, skill, and judgment. Bad results from injuries of bone have the unpleasant habit of coming home to roost conspicuously upon the doorstep of him who has been responsible for the treatment, and, in the layman's eyes, anything short of complete functional recovery represents permanent crippling. With the realization of the responsibility which the treatment of fractures entails, many physicians have reached the decision either to acquire special knowledge of modern methods of fracture treatment, or to give up handling such injuries.

Speaking as one who has had some opportunity of viewing fracture treatment in its

broader aspects, I cannot refrain from expressing the opinion that this decision seems justified. The management of bony injuries demands specialized knowledge; and proper instruction and practical training in this subject are still woefully deficient in both medical schools and hospitals. Constant experience and practice in handling fractures is the chief requirement, supervised at first by a skilled surgeon.

With the ever increasing expansion of commercial and manufacturing activities industrial surgery now affords opportunities to acquire this familiarity with fractures in communities of every size. Postgraduate courses are also being offered by medical schools and hospitals. Physicians are taking advantage of these opportunities and capable surgeons are being developed everywhere; our task is to utilize them to the best advantage.

I realize that I am treading upon dangerous ground in touching on the question of specialization in medicine, but one cannot urge special training in the treatment of fractures without attempting to indicate how far that specialization shall go. Let us first admit that this is an age of specialization; innumerable specialties exist in various branches of the law, science, art, and industry. Even the mechanics who assemble our automobiles are specialists in one or two particular tasks. The whole tendency of the times is in that direction, and it is as useless to try to prevent it as to attempt to keep the waters of the Mississippi from rising in flood periodically; rather should our efforts be employed in confining them within proper channels. Specialization has its advantages, yet it also has its dangers, and in medicine some of these are fairly obvious and must be avoided. Specialization depends upon team work among groups of physicians, and it cannot exist in small communities without some attempt at organization. In the last analysis the question of how far a physician may carry specialization will be decided upon the basis of opportunity and of interest in the subject.

* Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

In so far as the treatment of fractures is concerned, it is largely a matter of interest. Interest in fractures presupposes a mechanical sense, and this is a fundamental requirement. If a physician is interested in the treatment of fractures then he will perfect himself in their treatment and should be given the opportunity to acquire experience in caring for them.

Fracture treatment should revolve about the hospital with its X-ray laboratory, splint room and operating theatre as the center. The hospital staff should develop the sense of team work, and while its members carry out general assignments they should also develop the ability for special assignments. Each hospital should designate two or more members of its staff to handle the treatment of fractures. Thus would be established the nucleus of a fracture service functioning not only in the hospital itself but also in the outpatient department and follow-up clinic. The necessary equipment would be acquired including apparatus permitting the fluoroscopic reduction of fractures, portable bedside Roentgen sets, Balken frames, Thomas and other splints. It would be possible to establish a department of physiotherapy. End results would be studied and valuable data placed on file permitting at some future time the more exact evaluation of methods of treatment.

Such fracture services have been established in some of the large hospitals of the country and have functioned with conspicuous success. It remains now to extend the system to the small town and county hospitals scattered throughout the states. The modern treatment of fractures requires not only knowledge but also much in the way of equipment and organization. Only by some means such as that suggested can the average of results throughout the country be brought up to the standard that has been established in some medical centers.

Emergency Treatment of Fractures.—One of the fundamental rules of modern fracture treatment is that the part must be splinted from the moment of injury. The motto should be "splint them where they lie." This rule should apply to all types of bony injuries, at least until X-ray evidence of the exact nature of the fracture has been obtained.

Early splinting is particularly necessary in the case of fractures of the shafts of long bones. If such fractures are properly splinted immediately after injury, displacement is prevented from its inception. Displacement is usually caused by spasm and contraction of the muscles and does not occur if the part is im-

mediately splinted. When a patient with a fracture of the shaft of a long bone is transported without proper protection of the injured limb irritation is set up by the motion of the fragments, the muscles go into a state of spasm, and the bones displace and override. Not only this, but there is danger of producing additional damage to the soft parts and of injuring important vessels and nerves. Such conditions also lead to the development of surgical shock as the experience of the World War abundantly demonstrated.

The benefits of immediate splinting on the field at the moment of injury were likewise demonstrated at that time as the mortality from fracture of the shaft of the femur was reduced from nearly 80 per cent to 16 per cent after the institution of this practice. This lesson learned in war time should be applied on an even wider scale in peace time. Splints should be used that are simple, effective, and easy of application. The ring splints devised by Hugh Owen Thomas, and which are usually designated by his name, best meet the requirements for emergency use. Under the rules of the Hospital Standardization Committee of the American College of Surgeons every approved Class A hospital must keep such splints on hand as a part of its regular equipment.

The application of such splints for emergency use in cases of fracture is a simple matter and every physician whether doing special or general work should have the knowledge and equipment to render effective first aid treatment. Splinting teams capable of rendering emergency treatment should be developed among the workmen in factories and other industrial centers. Ambulances should be equipped with splints and their crews ought to be trained to apply them. By the development of such methods patients with fractures will reach the hospitals in better condition and the results will be still further improved.

Hospitalization.—Patients with major fractures ought to be taken at once to the place where they can be best treated and without doubt this place is the hospital. Proper treatment must be rendered at once and all the necessary facilities for examination and treatment must be at hand without the necessity of transporting the patient back and forth needlessly and of losing valuable time. Often the patient is in shock in which case every moment counts. The arguments in favor of immediate hospitalization are so strong and the advantages so obvious that they do not need to be detailed here. Whether the patient will have to remain at the hospital or may be permitted to leave im-

mediately can be decided after the exact nature of the injury has been determined and appropriate treatment administered.

Examination.—Upon arrival of the patient at the hospital the first thing to be done is to make a careful local and general examination. There is a great tendency at present to neglect the local examination and to rely wholly upon the X-ray. This is a dangerous practice and one which often leads to trouble. If a nerve injury or vascular damage is discovered only after the fracture has been reduced and splinted the surgeon cannot escape the onus of responsibility for the result. On the other hand, by taking the little time and pains necessary to examine the part and to test the function of the nerves and the condition of the circulation at the outset, the presence of paralysis or of ischemia can be readily recognized and future trouble avoided.

I recall the case of a boy with a supracondylar fracture of the humerus that illustrates this point very well. He was brought into the hospital two hours after injury and the only treatment that had been rendered was the application of a straight wooden splint to which the arm had been loosely bandaged. The X-ray showed gross displacement of the fragments, and manipulative correction of the deformity was obviously indicated. The local examination, however, showed inability to move the fingers, marked pallor of the hand, and absent radial pulsation in the wrist indicating an oncoming ischemic paralysis. In spite of our best efforts to counteract it, the condition progressed and resulted in a true Volkmann's contracture. If the local examination had not been made the condition would not have been discovered until after the fracture had been reduced and splinted; the patient and his relatives would naturally have considered that it was the result of our treatment and it would have been difficult indeed to prove that it was caused by the injury alone, as was actually the case.

In addition to its importance in revealing the presence or absence of nerve injury or of circulatory damage, the local examination yields much information that is of value in the treatment of the fracture, particularly in reference to the extent of soft part damage, the involvement of the adjacent articulation, and the condition of the skin. Only the gentlest methods of examination should be used. It is not necessary to demonstrate crepitus or abnormal mobility to recognize that a fracture is present. Any manœuvre that causes pain is likely to be harmful and should be avoided.

X-ray Examination.—The necessity of an

X-ray examination in all patients with fracture or in traumatic cases where there is a possibility of a fracture is so generally recognized that it seems unnecessary to urge it here. The frequency with which patients with unrecognized fractures are encountered and the correct diagnosis made only many weeks or months after the original injury shows that there are still many instances where this rule is not applied. X-ray examination is necessary not only to show the presence or absence of fracture in cases where the diagnosis is in doubt, but it is also required in patients where the diagnosis is clear, the fracture being demonstrable by the clinical examination. Its purpose in such cases is to elucidate the details of the injury, the type of fracture and its severity. It is also of value as a record.

X-ray examination should be made even in cases of seemingly trivial injury. The more such cases are submitted to X-ray examination the more frequently are found instances of bone injury which otherwise would have escaped detection. The common sprains of the ankle are frequently shown to be complicated by the pulling away of small fragments of bone at the attachments of ligaments; wrist sprains are shown to be fractures of the scaphoid or of other carpal bones, and back sprains are revealed as compression fractures of the spine. X-ray examination should always be made in the anteroposterior and lateral planes; if this is impossible then stereoscopic films should be made.

The results of treatment of a fracture must also be checked by X-ray examination. Thus may be judged the success or failure of attempts at reduction and the progress of healing of the fracture. A portable bedside unit is necessary for the examination of patients requiring recumbent treatment with traction or other apparatus, and such a set should be part of the regular equipment of every hospital that undertakes to treat fractures.

Treatment.—Having made the diagnosis of fracture in a given case and having employed all available means to secure additional information as to the local and remote effects of the injury, the surgeon must decide what method of treatment is likely to produce the best result. He has to decide between four general methods of treatment. These are:

1. Reduction and fixation method.
2. Traction method.
3. Operative method.
4. Massage and mobilization method.

1. *Reduction and Fixation Method.*—The reduction and fixation method is the traditional method of setting the fracture. Its

purpose is to overcome the displacement of fragments by manipulation and having brought the bones into proper alignment, to maintain them in that position by the application of splints of wood, metal, or plaster of Paris. This method of treatment is chiefly indicated in fractures of bones which occupy superficial positions in the body so that they may be easily grasped and where the cross-sectional area of the bones is large so that when replaced they can be retained in position with little chance of their slipping. In general, transverse fractures are more suitable for this method than oblique or comminuted fractures, but there are exceptions to this rule.

Another important aid to the success of the procedure is the use of an X-ray apparatus with fluoroscopic screen permitting the visualization of the bones during the manipulation. Special fracture reduction tables equipped with oil immersed tubes can be obtained for this purpose which supply both the factors of maximum safety and utmost convenience.

To be successful, manipulative reduction must be performed at the earliest possible moment after injury. There is no justification for the old policy of applying temporary splints and of waiting for the swelling to subside before attempting to realign the fragments. If the history of this practice, formerly so prevalent in our hospitals, could be traced I am sure it would be found to have originated in the disinclination of some testy old surgeon to abandon the comfort of his bed for the uncertain joy of going to the hospital in the middle of the night to set a fracture. With the lapse of every hour after injury more exudate is poured out about the seat of fracture, the muscles lose their elasticity, the swelling increases, the fragments become more and more fixed in their displaced position, and the more difficult it becomes to reduce the fracture. On the other hand, with immediate reduction the swelling never develops to as great an extent as when bony deformity is allowed to go uncorrected, and it is always possible at the time of applying the splints to provide space enough so that what swelling does occur will do no harm. Thus, if plaster casings are applied they should always be split on two sides and fastened with buckle straps or bandage. The point to be emphasized, however, is that a fracture is an emergency and should be given right of way in order that it may be treated immediately.

The reduction and fixation method of treatment is satisfactory in certain types of fractures, notably those about the wrist and ankle. Success depends upon a proper selection of the

type of injury in which the method is to be employed, the application of the procedure soon after injury, and skill and manipulative dexterity on the part of the operator. If reduction is not obtained it is useless to repeat the manipulation as that will only lead to additional trauma. Rather should the surgeon have recourse to another method which offers greater assurance of success. If, on the other hand, manipulative reduction proves successful then the surgeon should turn his efforts toward reducing the period of complete fixation to as short a time as possible. An estimate should be made of the approximate time when the splints may be removed, to allow guided or supported movements, when to permit massage and active motion, and when splinting protection may be entirely discontinued. The dangers of the reduction and fixation method of treatment are trauma from too forcible manipulation and stiffness and muscle wasting from too long fixation. In their wake follow painful convalescence and prolonged disability. With care these dangers may be avoided.

2. *Traction Method.*—The traction, or extension, method of treating fractures, unlike the reduction and fixation method, aims to bring about realignment of the fragments gradually instead of suddenly. A traction force is applied which exerts its action constantly in the axis of the injured limb; it not only counteracts muscle spasm and overcomes shortening but, by making the soft parts taut, tends to exert a replacing influence upon the fragments. The traction method finds its chief indication in fractures of the shafts of long bones which are deeply situated and surrounded by strong muscles where it is usually impossible to employ the reduction and fixation method of treatment with success. It is also frequently used in other situations when the reduction and fixation method has been tried and failed, when the fracture is extensively comminuted, or when the fracture is compound. The traction method should be used in conjunction with splints and of these the Thomas splints best meet the needs.

Traction may be obtained by the use of strips of adhesive plaster which are fastened to the skin, or by means of "ice tong" calipers, or pins fixed directly to the bones. Skeletal traction has many advantages over adhesive traction, chiefly that its action is exerted directly where it is wanted, that is, upon the bones; hence it is more efficient and less weight is required; that it leaves the entire limb exposed for examination and treatment, an argument of capital importance when it is

a question of compound fractures; and, finally, that it permits the early mobilization of the articulations of the injured limb, a factor of great importance in reducing disability time. Contrary to the impressions of those who are unfamiliar with its use, skeletal traction is neither painful nor, if proper technic be observed, is it dangerous. The method has come into wide use and a large experience with it has been acquired.

There has been a great development of the traction method in recent years in both the adhesive and skeletal forms and new ways of employing it are constantly being found. This has constituted one of the great improvements in fracture treatment.

3. *Operative Method.*—The operative method of treating fractures is of comparatively recent development and owes its popularization to the pioneer work of Lane, Lambotte, and others. It aims to solve the problem of a difficult fracture by exposing the injured bones and replacing them under direct visual observation. If the fracture is an easy one to hold, reliance may be placed entirely upon external splints as a means of retention. More often, however, internal fixation is resorted to by means of plates, bands, or screws of steel, beef bone, or ivory. Depending upon the security of the internal fixation, external splints may be used or dispensed with more or less completely.

The opinion used to prevail that open reduction should be resorted to only when all other methods failed. Hence, when operative treatment was employed the result, while good from the anatomic standpoint, was often a failure as far as function was concerned due to the excessive and repeated trauma to which the injured part had been subjected previous to operation. Modern fracture treatment proceeds on a different basis and recognizes that open reduction is often the method of choice, and in certain types of injury should be selected at the start in preference to other methods. It is the essence of good treatment to resort straightway to that procedure which offers the greatest chance of success. In a difficult case, if open reduction is likely to be required, it is important to recognize that fact at the earliest possible moment in order to avoid the needless trauma of repeated manipulations and unnecessary prolongation of the period of treatment. Open reduction is especially indicated in many of the more severe intra-articular fractures accompanied by marked bony displacement where it would be obviously impossible by other means to obtain the reconstruc-

tion of the smooth joint surface so necessary for function.

In certain other fractures operative treatment may be optional, that is to say, a competent surgeon with a large background of fracture experience may elect to operate in preference to employing nonoperative methods, basing his decision upon his expectation of thus being able to shorten the disability time and of securing a better functional result. The resort to the open method in the treatment of transverse fracture of the patella is an illustration of this attitude. The operative treatment of fractures, however, involves great difficulties both of a technical and mechanical order. The risks are greater than with almost any other operation of election and the penalty of failure is more severe. When an operation is attended by such difficulties and risks it ought to be attempted only by skilled operators and under the best conditions as regards equipment and facilities. A surgeon is justified in employing the operative method in the treatment of a fracture provided that he obtains a good result, but if the result is a failure his responsibility is great and justification is difficult unless the indications were clear cut and the technical requirements of the operation fully satisfied.

4. *Massage and Mobilization Method.*—The massage and mobilization method of treating fractures was developed by Lucas Championniere between 40 and 50 years ago in an attempt to remedy conditions resulting from the extreme use of immobilization in fracture treatment at that time. It must be remembered that this was before the discovery of the Roentgen ray and when modern operative surgery was only just beginning to blossom as a result of Lister's discovery. Reduction of fractures was controlled only by the senses of sight and touch, and shortening and deformity of greater or lesser degree were considered the inevitable results of severe bone injuries. Healing of the fracture was considered almost the only objective of treatment and prolonged immobilization of the part was held to be the sole means of achieving this end.

Championniere said that healing of the fracture was only a means to an end, and that the primary goal was restoration of function. According to his view, it was much better to have a crooked limb with flexible joints and useful function than a straight limb with stiff joints. Considering that most of the patients must have had some degree of bony deformity in any case, irrespective of the method of treatment, his attitude represented an advance. He advocated massage and early motion in the

treatment of fractures and obtained results that could not be duplicated by the orthodox methods of treatment of that day. Championniere performed a useful task and his lessons have borne fruit although few now apply his teachings literally. He was the pioneer of the functional viewpoint, the central thesis of all fracture treatment today.

In the modern treatment of fractures massage and mobilization do not constitute a method of treatment, strictly speaking, but are regarded as therapeutic agents to be used conjointly with other forms of treatment. At one stage or another they are employed in the treatment of nearly all fractures. They have contributed greatly to the shortening of disability time and to the improvement of functional results. In fractures without gross displacement massage and mobilization should be used from the beginning and, in combination with light protective splinting, constitute the chief factors in treatment.

Physiotherapy.—Discussion of massage and mobilization in the treatment of fractures brings up the entire question of physiotherapy and the value of employing physical agents in such conditions. Massage and all the modalities of applying heat are definitely helpful in restoring function to a limb, but there is a tendency to expect too much of them. Experience shows that active voluntary muscular effort and the will to use the part and to continue in spite of temporary discomfort are the essential factors; without these no result will be good regardless of the amount of physiotherapy that is employed. There is danger in the use of physical agents unless this is explained to the patient, as he tends to rely upon the efforts of others not realizing that what counts the most is what he does himself.

Mobilization.—Mobilization of the joints of a fractured limb should be begun early but arrangements must be made to prevent movements from throwing strain on the seat of fracture. This may be done by supporting the fracture manually and at the same time lifting the weight of the distal part of the limb while the patient's own muscles supply the effort necessary for the motion. This is the method employed in the case of fractures of the elbow and wrist. Another method is to remove the splint on one side of the limb but to leave the splint on the other side as a support on which the part rests while the motion is being made. This method is the one used in the case of ankle fractures, the posterior half of the plaster casing with the foot piece being left as a support and motion of the ankle being permitted in dorsiflexion and inversion. Still another

method is the one used in fractures of the shoulder in the aged. The patient is instructed to bend forward letting the arm hang downward, thus permitting gravity to aid in maintaining the alignment of the fragments. The arm is then swung in a pendulum-like arc in both the frontal and sagittal planes of the body. A weight may be held in the hand to increase the traction force.

By some means such as described the joints of the injured limb may be mobilized at a comparatively early date. As union of the fracture becomes more solid, greater freedom of motion may be permitted. The exercises must be performed regularly and faithfully each day. It is indeed quite astonishing to see how rapidly progress is made and what benefits result from early mobilization of fractures. Muscle atrophy is prevented and adhesion of the muscles to the callus is minimized. The articulations retain their flexibility. The circulation is improved and swelling diminished. The total disability period is reduced.

Let any one who doubts the validity of these claims try the experiment of treating one of two patients with similar fractures of the ankles by early motion and the other without. He will find that the first patient will be ready to return to work in almost half the time required by the second.

Convalescent Splints.—Another feature in the treatment of fractures which requires emphasis is the necessity for protection of many fractures during the convalescent period, particularly those of the lower extremity. Many physicians do not realize that although the union of a fracture may be strong enough to withstand all efforts to demonstrate motion, it may not be sufficiently solid to resist the strain of bearing the body weight. We have seen what were apparently good results from fractures of the femur or of the bones of the leg ruined by the failure to protect with proper apparatus when weight bearing was permitted. The fragments gradually telescoped or angulated and the changes took place so insidiously that the real situation was not discovered until too late. On the other hand, active use is to be desired if proper protection can be afforded as it counteracts bone atrophy and stimulates solidification of the callus. Thomas' caliper splint is an excellent protective device in fractures of the lower extremity and in the case of the upper limb special splints can be devised if required to allow motion and use while at the same time reducing the amount of strain on the fracture.

However, I observe that my time allotment has nearly expired and it would be the irony of

fate if in an address on fractures I subjected your forbearance to such a strain that it resulted in producing a fracture. The subject assigned me by your chairman was the "Modern Treatment of Fractures." This is a very indefinite title and one that is susceptible of different interpretations. To some surgeons the modern treatment of fractures might mean an opportunity to talk on the operative method of treatment and the improvement in results that may be brought about by greater development of that method; to others who are enthusiastic over the results achieved by the traction method it might mean a call to detail the advances that have been made in applying that method to all manner of fractures; to still others it might mean the duty of describing the accomplishments of physiotherapy in the treatment of fractures. If I were to attempt to designate the one thing that in my opinion best typifies the modern treatment of fractures it would be a state of mind rather than a method of treatment. It is a way of approaching the treatment more than anything else and for want of a better term I would designate it as the functional viewpoint in treatment.

Functional treatment has as its aim the complete restoration of function in the shortest possible time, and the test of functional recovery is the ability to return to the old job and to earn the same wage as before injury. It does not view a fracture as merely a broken bone; instead it attempts to visualize the whole injury in terms of muscles, tendons, nerves and joints and in its effects upon the physiology of function. It looks ahead from a background of experience to forestall immediate and future dangers. It pursues a continuous and carefully considered plan from the moment of injury to the time of resuming work. It does not consider the needs of special structures except from the standpoint of their relation to the organism as a whole. Above all it is based upon a knowledge of end results.

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FRACTURES OF THE UPPER EXTREMITY

NONOPERATIVE TREATMENT*

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The subject of fractures occupies one of the foremost positions in the field of medical and surgical practice today; yet there possibly is no other subject or branch where there is less

* Read in the Symposium on Fractures at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

standardization in the methods of treatment. It would seem that the greatest need in the fracture problem today is a standardizing of our methods and a weeding out of many individual and unnecessary procedures which serve no purpose but that of complicating our problem of securing the best functional results in the shortest possible time.

While I am only to deal with the non-operative treatment of fractures of the upper extremity there are several well founded principles which apply to the treatment and management of fractures in general. A brief consideration of these principles at this point will obviate the necessity of discussing them in connection with the individual fractures and save repetition.

PRINCIPLES OF TREATMENT

1. Fractures should be splinted at the place of accident and the patient removed to the hospital or office for the permanent dressing. This reduces suffering and shock, cuts down undesirable muscle spasm, thus preventing wide separation of fragments, and makes reduction much less difficult.

2. A careful examination should be made before attempted reduction, noting any injury to blood vessels, nerves and soft parts, as such



Fig. 1. Clavicular cross; adjusted from back.



Fig. 1a. Clavicular cross; front view.

complicating injuries are always of great importance.

3. The fracture should be reduced or definite treatment applied at the earliest possible moment. Correction of deformity becomes increasingly difficult with the lapse of time, due to the infiltration of the surrounding soft parts with hemorrhage and inflammatory exudate.

4. Whatever form of fixation is used for splinting, frequent observation should be made of the injured part to guard against pressure sores and tight bandaging.

5. X-ray plates should be made in two planes before and after reduction and repeated at such intervals as may be necessary to be sure that the position is being maintained.

6. The after-treatment of fractures is most important. Light massage should be started as early as possible and active motion of the adjacent joint as soon as there is enough callus to hold the fragments in place.

STANDARD METHODS

It may be stated that in general there are two standard methods of treatment used in the nonoperative management of fractures,—(1) the reduction and fixation method; (2) the traction method. All other methods are variations of these and may be considered as special methods and not entering into this discussion.

The Reduction and Fixation Method.—This is the traditional method of “setting” the frac-

ture by closed manipulation and retaining it in proper alignment by the immediate application of splints or casts which immobilize the fracture and the joints above and below. This method, while fairly efficient in many fractures, has distinct disadvantages. It requires an anesthetic and, as the patient is usually disinclined to submit to this any oftener than is necessary, there is a tendency to let well enough alone if complete reduction is not obtained at the first manipulation. There is the risk of applying splints too tightly with resulting circulatory disturbance. It is difficult, and at times impossible, to maintain the reduction while applying the fixation dressing, and serious displacement may occur even after the splint has been applied due to muscle spasm and the difficulty of getting splints closely applied. Finally, there is the difficulty of caring for the soft parts and using the physiotherapeutic measures so necessary if early function is to be restored.

The Traction Method.—The use of continuous traction or extension constitutes the basic feature of the traction method. When we consider that, given a solution of the continuity of a bone, the resulting displacement is due entirely or largely to muscle pull and muscle spasm (for even when the traumatizing force causes a deformity the muscle spasm maintains and frequently increases it) it becomes evident why traction is so useful a therapeutic agent. Traction overcomes muscle pull and muscle spasm and secures alignment by exerting a pull in the direction of the normal



Fig. 2. Traction apparatus for fracture of neck of humerus.

anatomic lines. Traction aids in securing immobilization by putting under tension the fascia and muscles surrounding the bones. Reduction is brought about gradually without the necessity of anesthetic or traumatizing manipulation. Finally, when properly applied, the extremity is easily accessible for physiotherapeutic measures.

It is our opinion that as a standard method for the nonoperative treatment of fractures in general, traction is the method of choice whenever it can be used. It has been our experience in fractures of the upper extremity that traction gives by far the most satisfactory results, and it is the routine method used in our clinic for all fractures of this region which are considered as being amenable to nonoperative treatment, with four exceptions, which are: fractures of the lower end of the humerus, fractures of the shaft of the radius, fractures of the head of the radius without displacement, and Colles' fractures.

As it is the purpose of this paper to point out as briefly and concisely as possible a standard method of nonoperative treatment for each of the most usual fractures of the upper extremity, we will not discuss the points of diagnosis and types of displacement met with in the individual fractures. We assume that you are already familiar with these and feel that a discussion of such well established facts is unnecessary. One form of treatment which has been generally accepted as standard



Fig. 4. Traction apparatus for fracture of shaft of humerus.

and which has proven the most useful in our clinic will be described for each fracture. By discussing the treatment of fractures of the upper extremity in this way, it is hoped that confusion may be avoided and perhaps some useful information imparted.

Fracture of the Clavicle.—Traction is used in the management of this fracture in the form of a T splint or clavicular cross (Fig. 1). This splint properly applied pulls the shoulder up and back, immobilizes the fragments and permits the person to be ambulatory and use the arm. In applying this splint, the cross-bar should be placed well up on the base of the neck, then as the upright bar is brought down against the back, traction upward and backward on the shoulder is secured. The splint should be adjusted and tightened every two or three days and may be discarded at the end of three or four weeks. The use of narrow stockinette as a bandage avoids constriction under the arm and increases the comfort of the patient.



Fig. 3. Aeroplane splint; to replace traction after 2 to 3 weeks.

Fracture of the Surgical Neck of the Humerus.—Traction in abduction with a varying degree of external rotation, the patient being in bed, is our routine treatment in this fracture. Traction is applied by adhesive strips with the elbow flexed to permit of regulating the external rotation. The arm is suspended from an overhead frame for comfort (Fig. 2). At the end of two or three weeks an



Fig. 5. Cast in Jones position for supracondylar fracture of humerus.

aeroplane splint may be substituted and the patient allowed up (Fig. 3).

Fracture of the Shaft of the Humerus.—This type of fracture is best treated by a traction splint of the Jones type (Fig. 4). Traction is made by adhesive strips. When the fracture is below the insertion of the deltoid the addition of a chest support to hold the arm in about 50 degrees of abduction adds materially to its efficiency. Coaptation splints may be used. Motion may be started in four to five weeks. Injury to the musculo-spiral nerve occasionally occurs in connection with this fracture.

Supracondylar Fracture of the Humerus.—In treating this fracture manipulation and fixation is the method to be used. In fractures of the lower end of the humerus, the lower fragment is displaced backward by the fracturing force and the muscle pull. In reducing the fracture, an anesthetic should be given and the following manipulation carried out: with the elbow extended, traction is made on the forearm; the elbow is then brought into acute flexion, locking the fragments in place. After reduction, the entire extremity is immobilized in acute flexion in the Jones position. This position may be modified to meet the needs of the individual case. The best method of

holding the fracture in this position of acute flexion is by a posterior molded plaster splint (Fig. 5). Circular dressings should be avoided as this fracture is usually associated with considerable hemorrhage and swelling which may compress the blood vessels and nerves at the elbow. As a result of pressure on the median, ulnar and musculo-spiral nerves we get degeneration and interference with the conductivity of the nerves. Volkmann's ischemic paralysis, which is such a frequent and disastrous complication of fractures involving this region, is caused by such compression of veins and nerves.

Fracture of the Shaft of the Radius.—In treatment of a fracture of the shaft of the radius alone the manipulation and fixation treatment is usually adequate. If the fracture is above the insertion of the pronator radii teres, reduction is made by forcible extension and the fracture splinted with the hand in supination. If the fracture is below the insertion of the pronator radii teres, the reduction is made by forcible extension with the hand put up in pronation. In these fractures, a molded plaster splint is the most efficient form of support. Motion should be started in three weeks.

Fracture of Both Bones of the Forearm.—It is our experience that traction is by far the most efficient method of treatment for such fractures. The traction is best applied through a traction splint which gets its counter-traction against the lower end of the arm with the elbow bent. Several splints have been

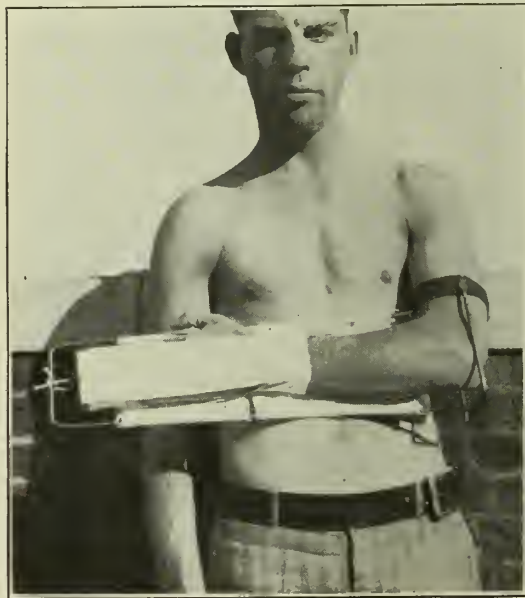


Fig. 6. Traction apparatus for fracture of forearm.

devised for reducing this fracture of the forearm by traction, and a very efficient splint may be improvised by bending a heavy piece of wire in the proper manner and fixing it just above the elbow with a few turns of plaster bandage. Traction is secured through adhesive strips tightened by twisting a stick (Spanish Windlass). (Fig. 6.)

Colles' Fracture.—In this fracture, manipulation and fixation is the method of choice. Reduction under an anesthetic is usually necessary. The reduction is made by hyperextending the wrist to break up any impaction present, then traction and forcible flexion, sweeping the hand toward the ulnar side. We are accustomed to fix our Colles' fractures in acute flexion with some ulnar deviation, using a molded plaster splint (Fig. 7). In this position the muscles aid in maintaining reduction. Tearing of the radial ulnar ligament with luxation of the lower end of the ulna complicates this fracture. In making the reduction care should be taken to secure a proper reposition of the ulna as failure to do so results in impairment and weakness of the wrist. The splint should be worn two to three weeks in Colles' fracture, less time (ten days) in old arthritic cases as stiffness in the wrist and fingers and interference with function results if these joints are immobilized longer.

Metacarpal and Phalangeal Fractures.—While many of these fractures can be treated with simple palmar splints, especially fractures in the shaft, many of them will do much bet-



Fig. 7. Position of splint after reduction of Colles' fracture.

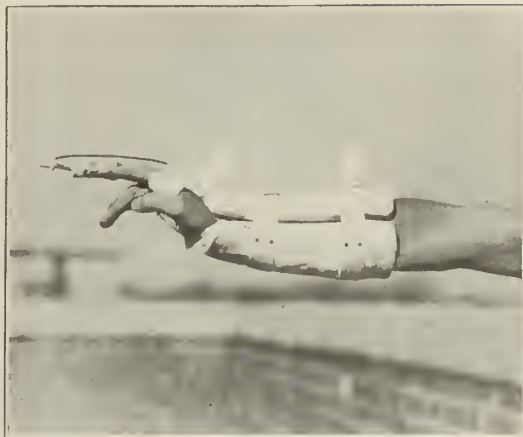


Fig. 8. Traction apparatus for fracture of fingers.

ter with traction. This is the case when the fracture involves the ends of the bones or one of the joints. Traction can be applied by using the various traction splints, although here also a traction splint can be very readily improvised by using a piece of strong wire bent in a U shape and attached by plaster above the wrist, traction being secured by attaching elastic bands to the fingers with adhesive (Fig. 8).

We have omitted from discussion a number of fractures of the upper extremity as they should be classed as operative fractures. These fractures include fractures of the olecranon, fractures of the head of the radius with displacement, fractures of both bones of the forearm low down in the wrist within the pronator quadratus muscle and fractures of the carpus. The methods here advised are not given as original but as standard methods and are those which in our experience have been the most reliable and have resulted in securing the best functional results in the shortest possible time, which is the aim of all successful fracture treatment.

CONCLUSIONS

1. The best results will be obtained in the treatment of fractures by selecting a standard method for each fracture and adhering to this method as far as possible.
2. In our experience, traction is the most useful method of treating fractures of the upper extremity, with certain exceptions.
3. Traction is applicable in most of the usual fractures of the upper extremity by using one of the efficient traction splints, which are easily procured or made.

FRACTURES OF THE LOWER EXTREMITY*

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Due to the brief time allotted to this subject and to the broad scope that it covers we have chosen, with but one exception, to limit our discussion to fractures that involve or are in close proximity to joints, since it is this type that produces the greatest disability.

In treating fractures of the lower extremity we have two important functions to consider, namely, weight bearing and locomotion. In order to preserve these functions our efforts must be directed toward maintenance of normal length and alignment. Inequality in the length of the lower extremities causes a tilting of the pelvis with asymmetry or deformity, and a lateral lumbar spinal curvature toward the affected side with a compensatory lateral curvature of the dorsal region.

The neck of the femur is chief among the group of fractures most anatomically unfortunate. It is handicapped in its working position by being compelled to carry its load on an oblique axis while the remainder of the femur carries its burden on the long axis. It also has the structural disadvantage of being composed almost completely of cancellous bone, having only an egg-shell thickness of compact bone as its covering. Its reparative function is handicapped by having no medullary canal for an adequate endosteal function to aid in new bone formation, and a very scanty blood supply easily embarrassed by a fracture of the femoral neck or the dislocation of the femoral head.

The femoral neck has two critical periods in its span of life—(1) up to and including the age of puberty when its epiphysis is soft and readily affected by direct or transmitted trauma; (2) after the age of fifty when it contains less animal matter and fractures more easily and when its chances for repair are greatly diminished.

Fractures of the upper end of the femur are of three distinct types: capital fractures, central fractures of the femoral neck and fractures of the trochanteric region. (1) Capital fractures, those of the head proper, are not frequent but they produce a serious joint problem from the standpoint of mechanical obstruction to joint function; for this reason it may require surgical intervention, but removal of a part or all of the head of the femur should not be resorted to until adequate time has been

allowed for union under favorable treatment. (2) Central fractures of the femoral neck, or intracapsular fractures, are more frequent and of more serious consequence, as it is well known that this type of fracture furnishes a larger percentage of non-unions than fracture of any other portion of the skeleton, and the disability is longer than from any other fracture of the lower extremity. The economic loss is of serious import. Whereas an elderly member of the family was formerly able to take care of himself and aid with other duties about the home he now requires the assistance of one or more of the family, the professional services of a nurse or hospitalization over a long period of convalescence. In a fracture case of this type, even if the patient is well advanced in years, and feeble or shocked from the slight fall, it is seldom that it is not worth while to immobilize the fracture or at least apply traction to overcome muscle spasm, thereby preventing added trauma from sharp fragments, and diminishing shock.

The diagnosis of fracture of the femoral neck is not difficult, provided the fracture is not impacted or held secure by a spicule of one fragment engaged in the other in such a way that the patient may walk, yet easily be dislodged by the stress of weight bearing and thus produce a complete central or intracapsular fracture with permanent disability. This has occurred in medicolegal cases where the fracture was not diagnosed.

The usual history of an intracapsular fracture in a patient past middle age is, that he had a slight fall from missing a chair, missing a step or slipping on a rug and alighting in a more or less sitting posture, and was then unable to get up or stand without support. Pain is referred to the middle third or to the upper part of the lower third of the thigh. There is inability to move or rotate the leg. The leg lies helpless with the foot rotated outward.

Epiphyseal slips in the upper epiphysis of the femur may occur in young adults near the age of puberty from a similar but usually a more severe trauma.

The treatment of choice in this type of fracture is the abduction method described by Whitman, which consists of broad abduction of the leg with marked internal rotation to bring the fragments of the femoral neck into apposition and alignment.

For several years we have obtained much better results with a shorter period of immobilization, and a smaller percentage of non-unions by impacting fractures of the femoral neck in the Whitman position, under the check of the X-ray, immobilizing them in a plaster of Paris spica cast extending from the nipple

* Read in the Symposium on Fractures at the Seventy-Second Annual Meeting, Missouri State Medical Association, Springfield, May 13-16, 1929.

line to the toes. These patients should be turned on their abdomen for from thirty minutes to one hour periods three or four times daily to prevent hypostatic pneumonia.

Non-union of intracapsular fractures with absorption should be operated on as soon as the process of absorption has reached its limit, providing the patient's physical condition will permit. Operating on these cases during the active period of absorption is only courting failure in a large percentage of cases, as this process also involves the autogenous bone transplant, and the case is doomed to a fibrous union with shortening and permanent disability.

The technic I have used is, roughly, as follows: The fracture is exposed through a lateral incision, the fractured surfaces are freshened, the fragments placed in apposition and, with the leg in the Whitman position, a hole of $\frac{3}{8}$ inch caliber is drilled just below the greater trochanter through the neck and well into the head of the femur. Through this hole is passed an autogenous bone peg taken from the tibia, and autogenous bone chips are placed in contact with the freshened surfaces of the absorbed area. The part is immobilized with a plaster spica cast for from two to two and one half months when a check-up X-ray is taken and immobilization continued if considered necessary. When the cast is removed the fracture is protected further by the aid of an abduction walking caliper brace with crutches for the remainder of the year following operation. When the cast is finally removed, baking, ultraviolet light treatments with massage and guarded passive motion are instituted.

Fractures of the lower end of the femur involving the knee joint may include one or both condyles. If both condyles are involved the fracture is of the T or Y type. This type of fracture is usually caused by a direct force to the external condyle of the femur or by a direct blow to the lower end of the femur while the knee is flexed. Caliper traction or even open reduction may be necessary if reduction cannot be accomplished by manipulation and traction. Inequality of condyles may result in a knock-knee or bowleg. A good functional result depends on a perfect reduction and early passive motion.

Fractures of the patella are usually due to a direct trauma and are of two common types, (1) transverse and (2) comminuted. Fully seventy five per cent of the transverse type occurs in the lower half of the patella. The greatest disability from patellar fractures is due to rupture of the patellar ligament.

All transverse fractures with marked separation of the fragments and all comminuted fractures should be reduced by open operation as these types cannot be reduced by the closed method without interposing fragments of tendon or other soft tissue. By the open method of reduction, more perfect contact of fragments can be obtained, also the ruptured tendons repaired the most important of which is the suturing of the lateral expansions of the tendon. Comminuted fractures are best reduced by a purse-string suture of heavy kangaroo tendon or live fascia lata. By this method passive motion may be begun within ten days after operation and repeated daily, but continuing support by posterior splint or bivalved cast for from four to six weeks.

Fractures of the head of the tibia are, for the greater part, the result of direct trauma, though frequently produced by tendon pull combined with imposed weight with torsion. Fractures of the outer tuberosity are often accompanied by a fracture of the neck of the fibula produced by a direct force applied to the outer aspect of the knee which often ruptures the internal lateral ligament of the knee joint. Failure to recognize this complication and to repair the injured ligament will contribute materially to a prolonged disability. Open reduction may be necessary if the tibial tubercle is carried forward by the pull of the patellar tendon but can usually be reduced by manipulation and retained by a snugly applied plaster cast.

Compound comminuted fractures of the lower leg with severe laceration of the soft parts are so frequent that I feel they should not be passed without mention as far too frequently they are the cause of a hasty amputation. In my opinion, there is but one condition that should decide in favor of an immediate amputation,—that is a destruction of circulation below the point of injury or the onset of gangrene as a result of such injury. Fractures of this type can easily be held in apposition by use of a Sherman bone plate or tied with kangaroo tendon after the wound has been cleared of all devitalized tissue, thoroughly washed with ether and a fresh 10 per cent mercurochrome solution left in the wound and the wound closed.

Fractures of the ankle can be classified in three types:

(1) Inversion fracture, produced by forced inversion of the foot causing a fracture of the internal malleolus and of the fibula, either at the styloid process or somewhat higher, and the astragalus pushed inward so that the foot appears more or less inverted.

(2) The eversion type, commonly known as

Pott's fracture, which consists of a fracture of the internal malleolus and the fibula from one to three inches above the lower end, and is characterized by an eversion of the foot with the astragalus displaced outward.

(3) Is characterized by the astragalus being displaced backward or a subluxation of the astragalus on the tibia. This is the type of ankle fracture most frequently overlooked or improperly diagnosed and often improperly treated. This type has been called drunkard's fracture, or as I have styled it, as the French heel type of fracture.

Treatment of all these types consists in the proper reduction of the astragalus, bringing it into its normal weight bearing line with the tibia, the foot at right angle with the leg and in slight inversion. I prefer immobilization in a plaster of Paris cast. They should be X-rayed before and after reduction. Any deviation of the astragalus from the center line predisposes to a weak and painful ankle. In the after-treatment the value of physical therapy measures and proper support of the arches of the foot, when weight bearing is begun, must not be underestimated.

Fractures of the astragalus and os calcis are usually produced by crushing injuries to the heel or from a fall, the patient lighting on the heels. One should not overestimate the disabling character of these injuries, and they should be considered second only to fractures of the femoral neck. The impacting method as described by Cotton, of Boston, has given us much better results in fractures of the os calcis.

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DISCUSSION

DR. R. McE. SCHAUFFLER, Kansas City: When one sees a master work and listens to a master talk it looks very simple and sounds easy, and when one listens to a past master like Doctor Blair it all seems very simple. All of you who have seen his work know that he can do it. I do not want to repeat any part of his speech, except that I wish somehow the editor of *THE JOURNAL* might publish on a page in big type, "Make the drainage yourself instead of waiting until your hand is forced by Nature, and so avoid almost all cases of delayed and non-union. Open the antrum and attack that fracture of the upper jaw at a time when the approach will be valuable."

As an ex-professor of anatomy as well as an artist I am of course delighted with the pictures and with the anatomical points that Dr. Diveley has so beautifully presented. As a practical fracture man my feeling is that it is not necessary to treat them so much. I think everybody should do away with adhesive plaster dressings in fracture of the clavicle. It is easy enough to make a T bandage, and T splints are easily available and offer a perfectly effective and comfortable method of controlling these fractures. Fractures of the humerus involving the upper extremity or the shaft, excepting the lower end, if they are well set under an

anesthetic, can in four out of five cases be retained in position without true extension but merely by extension strips to hold the limb firmly on the Campbell splint. If they are reduced and retained in half abduction in a Campbell splint the patient is comfortable and the end results better than by some more elaborate and cumbersome method of treatment.

The supracondylar fractures of course are reduced as Dr. Diveley shows, and a certain number of them need to be locked in acute flexion. The trouble from swelling of the soft parts is much less if you have them in the right angle position and the patient is more comfortable; and in a great majority of cases they are just as well treated and perhaps a little more safely treated by being put up in the right angle position instead of in acute flexion.

In fractures of the upper end of the radius we should distinguish between fractures of the neck and fractures of the head itself. Fractures of the head with very slight displacement are not very impressive in an X-ray picture, but in nine cases out of ten you will get loss of range of motion if they are treated expectantly. You will not have complete extension of the forearm in a majority of cases unless the fragment is removed. That is one of the cleanest cut indications for operation that I know of, if you have a proper patient for the anesthetic and the proper place to do the operation. If there is much comminution the head should be resected. Nature can fill up a gap in the head with callus, but she can do but poorly with a displaced ligament and a mass of callus. There is distinct limitation of motion and rather long continued pain.

Fracture of both bones of the forearm in the middle shaft present a problem to every man doing fracture work. They should be handled by mechanical extension, which is difficult to accomplish, or by operative procedure, which is not free from complications. Operative reduction is indicated in many cases and should be as simple as possible. Although not very keen about intermedullary splints as a rule, they are more often indicated in the bones of the forearm than in other parts of the body.

I have just this one point to make about Colles' fractures,—I like to put them in the drop wrist position, but they should be taken out of the splint reasonably soon. When these patients have arthritis, or carry local foci, like bad teeth, which might cause arthritis, there is danger of stiffness in a bad position. It is permissible to get a little less good result in the treatment of the fracture in order to save the use of the fingers. If you do use the drop wrist position in fracture, do not *push* the hand down; let it hang in a natural drop wrist position. In laying the plaster on many men want to give it an extra push and they put on the plaster too tight. This accounts for most of the bad results with this position. I like to put the hand and wrist in a more natural position the third week. Most people who come back after a Colles' fracture, where it has been well set, complain of the ulna, not the radius. It is too far forward or too far out. I prefer a splint very narrow-waisted at the wrist and try to lift up the ulna and draw the bones together.

Fractures of the neck of the femur, if you have the proper mechanical table, are comparatively easy. If you have a good gas oxygen anesthetist and can safely put the old people to sleep you can then put on a true abduction splint. You should have a portable X-ray apparatus to check them on the table for position. We never fail to have a picture taken while the patient is still asleep, before the

plaster is put on so as to check the position. Then we can determine whether we have a little too much extension or whether there is a little adjustment to be made. I can recall only a small minority of cases in which forceful impaction with a rubber hammer was necessary. When the X-ray picture is brought back, if the position seems to be good but there is much fine comminution but not engagement, that is the ideal place for dealing it a sledge hammer blow.

Fractures of the shaft of the femur treated in the Thomas splint require skill and patience on the part of the surgeon and the nurses or interns. Such fractures are a lot of trouble. I like to use a broad piece of yucca board cut oblique at the end toward the buttock, as a posterior splint or gutter for the thigh. This is padded with thick felt. The muslin strips from the sides of the Thomas splint pass beneath the board. The width of this posterior splint is one-fourth to two-fifths the circumference of the thigh and is broader at the proximal than at the distal end.

DR. L. G. McCUTCHEN, St. Louis: I am especially interested from the X-ray standpoint in the papers of Drs. Hess and Diveley on fractures of the extremities. You would be surprised how easily these fractures can be set provided proper extension can be had. I have a few slides showing fractures which we have reduced at the St. Mary's Infirmary and City Sanatorium, in St. Louis. These fractures are shown before and after reduction.

In forearm fractures, which are very difficult to reduce, especially in the middle third where both bones are involved, adequate extension will separate the fragments and the ends can be guided into position when the extension is released. As a rule, without the necessary pull, one fragment will be reduced and the other will slip out. In fractures of the surgical neck of the humerus, pull is made at right angles to the body. The patient is placed on a cart which is at right angles to the table. The axilla is well padded, then a slow steady pull is made. Little manipulation is required under these conditions.

Simple mechanical extension under fluoroscopic vision, using the biplane view, has proved very satisfactory in lower extremity work. The time interval, when using the biplane fluoroscopic screen, should be carefully watched on account of the double exposure both to the patient and to the hands of the surgeon.

The leather cuff cannot be incorporated in the cast. We use the Collins' hitch. First, the lower extremity is prepared for the application of the cast. Sheet cotton is applied, then the Collins' hitch. Over the hitch, the leather cuff is tightly laced. The necessary pull is made with the cuff, which is then removed. The extension is maintained with the hitch, which is incorporated in the cast.

DR. JOHN H. BARSON, Joplin: These masters have told us a lot about how to do these things, but in speaking to physicians in a general way I have told them—"be sure that the bones are restored to position and the proper adjustments made at the first dressing." The trouble I have met in dealing with these injuries came from delayed operation, from delayed attention, more than anything else. The time to repair the injury is at the time it takes place. Speaking generally, I should say, be sure you do these things at the right time. If we are not sure of ourselves, or if the pictures do not show the bones are properly adjusted, let us get help to see that they are properly adjusted at the

right time, and that is when the injury is sustained.

DR. REX L. DIVELEY, in closing: In presenting these few methods I have not tried to give you a panacea for the treatment of all fractures. They are just standard methods which have proved successful in our hands. If you standardize your methods of treatment of certain fractures it is better than trying some new method, then going back to your own. Your results would be better in the long run. That is why the joint committees of the American College of Surgeons and of the American Medical Association are trying now to get a group of standardized methods, and for three years have been teaching these methods at the meetings of the American Medical Association. They are trying to standardize the methods and discourage the use of every other man's methods, which in his hands may be all right but when used only occasionally will not prove successful.

X-RAYS AND RADIUM IN THE TREATMENT OF MALIGNANT DISEASE

OBSERVATIONS ON THEIR PRACTICAL
APPLICATION*¹

L. R. SANTE, M.D.

ST. LOUIS

The remarkable cinematographic film of Dr. Canti has demonstrated very graphically the effect of radiation on cell growth. The biological effect of X-rays and radium rays on tumor tissues has been known for a long time; in fact it was observed very shortly after the discovery of X-rays by Roentgen. It was soon found that these radiations were selective in their action, producing their most pronounced effects on embryonal tissues and showing less and less effects on cells as they became more highly differentiated.

This selective action of radiation is the basis for our entire system of radiotherapy today. Strange as it may seem, in spite of the many workers in this field and the perfection attained in the technical methods of applying radiation, we do not know just how this agent operates in the destruction of malignant disease,—whether its action can be entirely attributed to injury of the individual cell or whether the surrounding body tissues also play a part in the reaction. This study of Dr. Canti is therefore of especial interest because it provides definite experimental proof of the direct action of radiation on cell growth. It opens up a field of fundamental investigation which may lead to a clearer understanding of this intricate reaction. The fruits of this investigation the future alone can disclose.

* Read before the St. Louis Medical Society, February 5, 1929.

¹ From the Departments of Radiology of St. Mary's Hospital and St. Louis City Hospital.

What the practicing physician wishes to know is, "What practical results in the treatment of cancer can be expected from these agents with the methods now available?" This question cannot be answered by a concise statement, since tumors of various types react differently.

In general, it may be said that two principal factors influence the reaction of tumors to radiation;—first, the degree of differentiation of the cells composing the tumor, and, second, the stability of its nutrition. The more embryonal the type of cell the more readily it is affected by radiation. Tumors of this type are usually very malignant. While they may disappear rapidly under radiation they frequently reappear as metastases in some remote part of the body. Often a tumor composed of highly differentiated cells not easily affected by radiation will ultimately prove more favorable due to a limited tendency to metastasize.

There are other equally important elements that influence the reaction of tumors to radiation. The stability of nutrition of the tumor has probably more influence on its radiosensitivity than any other single factor. Rapidly growing cellular tumors are nourished by fine, newly formed blood vessels which have little if any protective fibrous tissue stroma. Such newly formed blood vessels are themselves very susceptible to the effects of radiation and rapidly disintegrate under its influence thus depriving the tumor of its nutrition. This may even prove effectual in the eradication of tumors composed of adult types of cells. Certain slow growing tumors having a large amount of stroma and an established, well protected circulation, may be very resistant and defy every effort of radiation.

As a general rule three rather distinct types of reaction occur in tumor tissue as a result of exposure to radiation,—autolytic, destructive and "growth restraining."

The *autolytic* reaction is one in which the cells melt away and are absorbed without toxic reaction and with little actual tissue destruction or scarring. This is the type of reaction which occurs in rapidly growing, highly cellular tumors, especially the embryonal type.

The *destructive* type of reaction represents the caustic effect of radiation on tumor tissue and is represented by necrosis and ulceration with extensive scar tissue formation on healing. It is accompanied by a more pronounced degree of toxic reaction. This type of reaction occurs in highly resistant tumors following intensive radiation.

The *growth restraining* type of reaction is produced by the restraining action of radiation

on tumor cells too resistant to be killed by the repeated application of radiation but merely held in check until large amounts of fibrous tissue are permitted to form. This fibrous tissue produces a dense capsule about the tumor which chokes off the cells and may cause their permanent restraint.

To produce these various types of reaction in tumor growths we have three general methods by which X-rays and radium rays may be employed. It must be remembered that X-rays and radium rays are agents of identical type, similar in their physical characteristics and in their biological action. They should be used as



(a)



(b)

Fig. 1. (a) Large round cell sarcoma of the neck extending well below the sternum. (b) Complete regression and disappearance of the tumor within three weeks. The autolytic type of reaction takes place in embryonal tumors and tumors composed of cells of low differentiation. This is the ideal type of radiation reaction; large tumors melt away and disappear without necrosis or toxic reaction.

supplementary agents and not as 'separate methods of treatment.

In highly cellular, rapidly growing tumors, especially of the embryonal cell type, relatively small doses of radiation are effectual in causing complete regression of the tumor. The regression is an autolytic process which follows death of the cells either as a result of direct action of the radiation on cell structure or its action on delicate newly formed blood vessels thus depriving the tumor of its nutrition. In this manner large bulky tumors seem to melt away and disappear in an incredibly short time without toxic reaction. The patient feels well and experiences a sense of well-being. Unfortunately, tumors of this type form a very small percentage of the total number of malignancies we have to deal with.

The second method of attack calls for the use of radiation as a caustic agent. In tumors having a well established blood supply, protected by a well developed fibrous stroma, radiation must be used as a caustic agent if we hope to bring about a destruction of the cells. The reaction results in destruction of tissue and necrosis leaving an ulcerating area which must be filled in with fibrous tissue. If the tumor is small and so located that it can be completely destroyed without materially affecting some vital organ or tissue, cures may be secured in this manner.

If, on the other hand, the tumor is large or so located that its complete destruction is impossible without destroying the life of the in-

dividual from toxic absorption or from interference with some vital function, the tumor may be attacked by the third method of procedure. Repeated doses of radiation are given over a long period of time, each dose within the range of tolerance of normal tissue structure. These serve to restrain the growth and permit the production of a large amount of fibrous tissue. By this means malignant growths may be "restrained" indefinitely so that although tumor cells may remain they are choked off by a heavy wall of fibrous tissue.

Given a malignant tumor, then, what procedure can we follow with a fair assurance of scientific treatment? It is often inadvisable or impossible to take a section of the growth for microscopic examination. How then are we to determine with any degree of accuracy upon a suitable method of attack? We have no means of accurately knowing the cell type of the tumor we are dealing with, but we do have recourse to our previous knowledge of the types of tumor which occur in any given location.

A good dictum to follow is, to assume that every growth is of the type most resistant to radiation, no matter how innocent it may appear, and, conversely, that no growth, no matter how malignant or extensive it may seem, should be abandoned as hopeless unless it has received the "test of radiation."

This "test of radiation" consists in exposure of a tumor to a full tolerance dose of X-ray or radium (as much as the skin will stand without injury) and observing the effect for from two to three weeks. If definite regression does not occur within this time the tumor is certainly not extremely radiosensitive, such as the embryonal type or highly cellular adult cell type. Therefore you cannot expect an autolytic regression to occur no matter how much more radiation you apply. If the tumor is small and readily accessible the caustic effect of radiation may then be tried by the administration of four or five times the ordinary tolerance dose of X-ray or the implantation of bare radon tubes. If the growth is large, repeated doses of X-radiation, each insufficient in itself to cause a marked reaction, are given over an extended period of time. This procedure may be carried out with X-ray alone or may be accompanied by the bountiful implantation of radon gold seeds into the bulk of the tumor. We hope by such procedure to secure regression of the growth, or at least to produce a state of quiescence from the restraint produced by the large amounts of fibrous tissue formed. A definite percentage of these tumors have proven absolutely resistant to all



Fig. 2. Necrotic reaction following treatment of carcinoma of lip of the resistant squamous cell type. The necrotic type of reaction results when highly differentiated resistant tumors are treated with radiation in sufficient doses to cause their destruction. Such tumors may be even more resistant to radiation than the surrounding normal tissues. This type of reaction is applicable in the treatment of small tumors only.

efforts of the radiologist and continue to grow under the most intensive radiation.

Experience has taught us that in various locations tumors of a certain type predominate. Approximately ninety per cent of skin carcinomas above a line drawn from the outer angle of the mouth to the lobe of the ear are of basal cell type; approximately ninety per cent of those occurring below this line are of squamous cell type. Superficial skin carcinomas which remain localized, such as basal cell growths not involving cartilage or bone, should be almost one hundred per cent amenable to radiation therapy. If the growth is of the squamous cell type, as in carcinoma of the lower lip, the problem becomes much more difficult and the outcome more uncertain. Even in squamous cell carcinoma the local lesion can usually be destroyed without difficulty, but the metastases, which readily occur in the regional lymph nodes, are very intractable to radiation since in this location it can have very little effect on the nutrition of the cell. Only by the caustic action of radium, or radon seeds planted directly into the nodes, can cancer in this location be permanently controlled.

Carcinoma of the mouth, buccal mucous membrane and pharynx is frequently quite amenable to radiation. Tumors of the tonsil may frequently be destroyed by radium and X-ray, even after extensive glandular metastasis. In carcinoma of the tongue radiology

stands out as the agent of foremost value. It is successful, in a great many instances, in completely eradicating the disease without shock or material inconvenience to the patient. The surgical attack in this location is attended with the greatest difficulty and in my opinion should rarely be undertaken.

Carcinoma originating in the antrum is most resistant to treatment. This type must be vigorously attacked by direct application of bare radium tubes after surgical exposure. Even then, owing to the close proximity of bone and other structures which react very unfavorably to radiation, the results are very poor and only a few cases are saved.

Carcinoma of the larynx also is strongly resistant to radiation. It is best attacked by surgical exposure of the growth and radium implants.

Carcinoma of the uterine cervix frequently presents the basal cell type, a type that is very amenable to radiation. Moreover, the cervix is not a vital organ and can be destroyed with more or less impunity. The fact that the cervix is a hollow organ permitting the introduction of radium directly into its interior also increases the applicability of this method of treatment to carcinoma in this location. Carcinoma of the cervix is indeed one of the most satisfactory diseases for treatment by radiation. Surgery, on the other hand, finds a most difficult problem to deal with in this location, and is possible in only an infinitely small percentage of cases.

At the St. Louis City Hospital during the past five years 175 patients with carcinoma of the uterus applied for treatment. Of these, 65 were so far advanced by reason of extension into adjacent structures or vital organs as to make treatment of any sort impossible, and 11 were postoperative cases. Of the remainder, 90 were carcinoma of the cervix and 9 carcinoma of the fundus. Of the cervical carcinoma none were operated upon; all were treated with radiation. Of these cases 50 could not be traced. Of the remaining 40, all practically of the advanced type, 25 had complete regression and disappearance of the tumor in six weeks after treatment, 18 have remained free from evidence of disease to the present date. Of the 9 cases of carcinoma of the fundus, all were operated upon. Four are dead and five are living.

These figures correspond to the statistics gathered at other institutions throughout the country,—Memorial Hospital, New York; Mercy Hospital, Chicago, etc. Today it is generally conceded that carcinoma of the cervix has been removed from the realm of surgery.

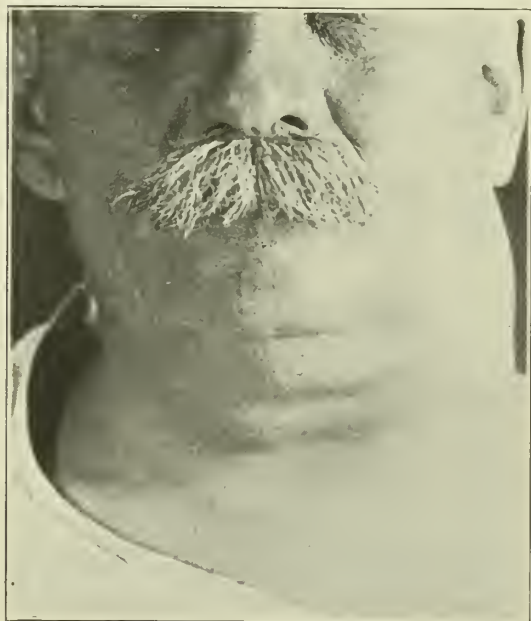


Fig. 3. Large endothelioma of the cervical region held in check for almost three years by interstitial radiation. "Growth-restraining reaction" is characterized by the production of large amounts of fibrous tissue about the individual cells or the entire tumor. This dense fibrous tissue capsule chokes off the tumor and restrains its growth.

Malignancy of the prostate usually presents the scirrhous type of carcinoma. It metastasizes frequently to the lumbar spine and bones of the pelvis producing those small areas of condensation in the bone so typical of the condition. The fibrous nature of the growth and the inaccessibility of the organ make it very difficult to treat with radiation. It may be treated by direct implantation of radon gold seeds into the prostate or by the cross fire application of X-rays from without, aiming at growth restraint. By this means the life of the individual may be extended for from two to five years, but little more can be expected from this method.

Tumors of the testicle are usually of the embryonal type,—teratoma, chorioepithelioma, or the cellular round cell sarcoma. All these are very sensitive to radiation and prompt regression can usually be expected. These tumors show such a great tendency to extend and metastasize that the result is rarely permanent. Extension of the testicular growth up the spermatic veins is common and instances have been noted of growth along the vessel wall all the way to the kidney regions.

Carcinoma of the penis may respond satisfactorily, but here again the result is ordinarily not permanent owing to the tendency to early metastasis in the inguinal lymph nodes. When once lodged in the lymph glands it is very difficult to influence the growth with radiation.

Malignancy of the gastro-intestinal tract is usually of the squamous cell or adenomatous type. On rare occasions, types of cell more sensitive to radiation may be encountered in this region. The problem here is essentially the same regardless of the location of the growth, whether it be esophagus, stomach, intestine or large bowel. The growth involves the entire thickness of the digestive tube; either *you give* sufficient radiation to destroy the growth completely, in which case you have nothing left to protect the surrounding structures from infection,—the mediastinum or peritoneal cavity as the case may be; or you *do not* give sufficient dosage to destroy the growth completely, in which case you have not relieved the patient of his cancer.

Occasionally cancer of the rectum may yield to intensive local treatment but in most rectal cases only a certain amount of growth restraint and palliation can be effected.

Tumors of the cervical region, mediastinum and abdomen are often lymphosarcomatous, a type that shows the most marked reaction to radiation of any tumor with which we have to deal. Bulky tumors of enormous size shrink to imperceptibility in a comparatively short time

under very small doses of radiation. We cannot expect all these tumors to remain permanently cured but a fair percentage may completely recover. Not all tumors in these regions are of the lymphosarcomatous type, therefore all should be given the "test of radiation."

Malignant tumors of the breast are most often of the adenomatous character, one of the least radiosensitive types of cell with which we have to deal. As a result it is fair to assume from the outstart that the growth cannot be destroyed by radiation in most cases except by making use of its caustic action. The rich lymphatic supply and the extreme tendency to metastasize also militate against the use of radiation in this field. Surgery still remains the method of choice in eradication of carcinoma of the breast.

Radiation evidently is not the ideal method of treating cancer and some more effectual method will probably be discovered. Yet radiation serves its purpose in the meantime, since it offers the only hope of cure in many cases inaccessible to other methods of treatment.

606 Missouri Building.

THE RECORDING SPHYGMOMANOMETER

A RECORD OF PERSONAL EXPERIENCE

GEORGE H. HOXIE, M.D.

KANSAS CITY, MO.

I obtained my recording sphygmomanometer in November, 1927, and have made about two thousand records. This experience is sufficient to enable me to form an opinion of its worth.

The machine is so constructed that a pen is moved by a vibrating membrane which responds sharply to the varying pressures under a cuff about the patient's arm. When the pressure in the bag nearly equals that in the blood vessel the pen makes its greatest swings. This is just above the point which we have been accustomed to call diastolic or minimum. The point of maximum pressure (or systolic) is shown by the first movements of the pen after the bag has been filled, and the air is allowed to leak out slowly. The rate of leak is under control and is made to parallel the pulse rate. In the records of normal persons the curve made by the pen is a regular or smooth one. Where there is lack of vascular tone or elasticity the curve is irregular or the spikes are not true spikes but rather inverted V's. In such heart diseases as the arrhythmias the curves show characteristic modifications.

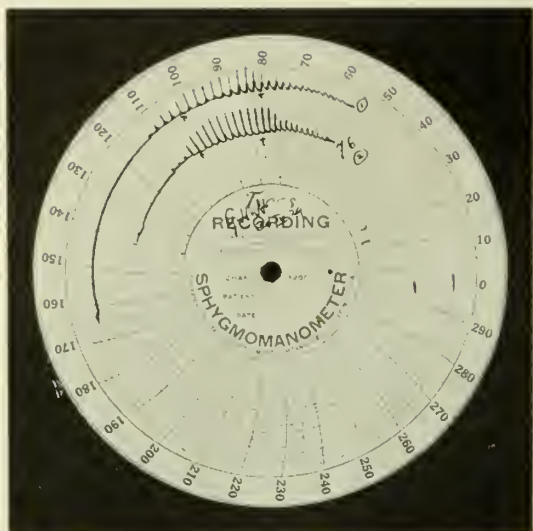


Fig. 1. Normal type curve, with low blood pressure.

The first matter about which I had to satisfy myself was the consistency of the instrument's records. This I have been able to do. But I have found that any interference with the rate of leak or any change in the pressure of the pen destroys the uniformity of action. In other words, the curves made for an individual are characteristic and vary only in so far as that individual varies in vascular tone and nerve impulse. This leads to the grouping of our records in classes or types and thus aids in "sizing up" or evaluating the patient.

The normal curve is that shown in Fig. 1, although this is a low pressure case. The oscillation begins with the systolic pressure at 112 and makes a symmetrical curve to reach its

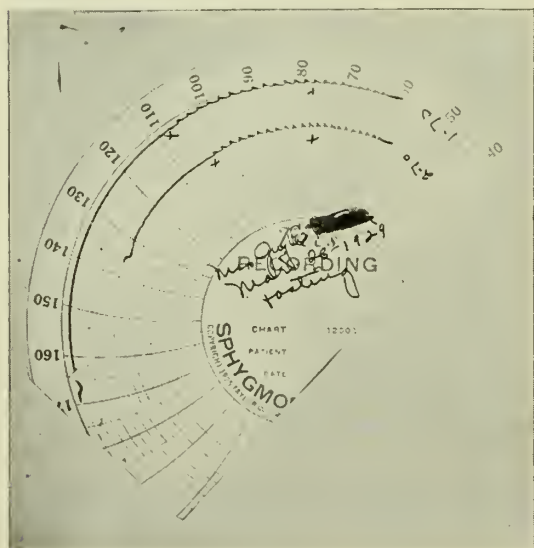


Fig. 2. Asthenic type of curve.

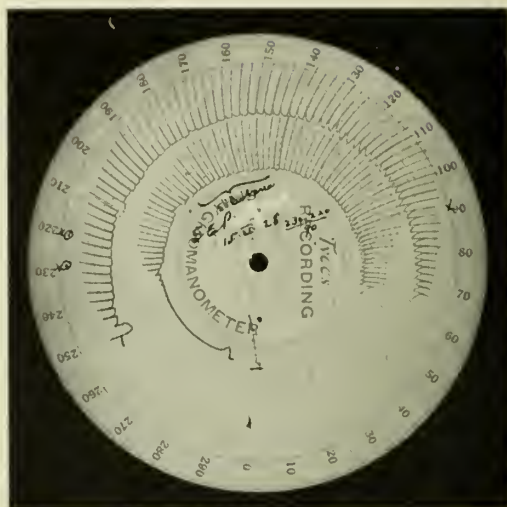


Fig. 3. Hypertensive curve.

maximum swing at 78. The next spike below this corresponds to what we have been accustomed to call the diastolic or minimum pressure.

The asthenic curve (Fig. 2) differs from the normal in the length of the swing of the pen and in the shape of the spike or oscillation. The swing is short. The spike is rarely a spike but an inverted V. The curve is not always as smooth as the one illustrated but is apt to show indentation or waves due to intrathoracic weakness (respiratory curves, choreiform movements, etc.). We find these graphs among the debilitated, the neurasthenics and also among the cardiopaths.

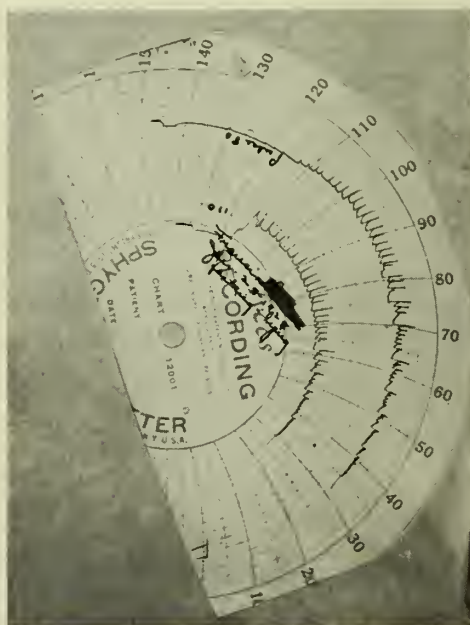


Fig. 4. Extra systoles in a 14 year old boy.

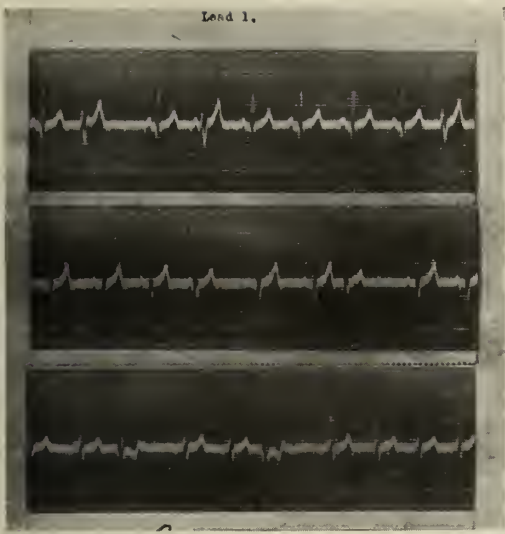


Fig. 5. Electrocardiogram of a 14 year old boy, showing extra systoles.

The hypertensive graph (Fig. 3) shows the prolongation of the curve, the longer swings of the pen, and the smoother movement which one would expect as the opposite of the asthenic curve. The important thing to notice about these curves is the gradual rise in the diastolic pressure. These graphic records have shown me how permanent these blood pressure changes are and that the auditory changes to which we point with pride are not real. Or, to put it otherwise, the study of these records has taught me to believe that the reduction of high blood pressure is often fallacious. What we do is to weaken the patient so that the vascular



Fig. 6. Curve in a 67 year old asthmatic. (Asthma began in 1926.)



Fig. 7. Curve in auricular fibrillation.

wall makes no audible snap when we take the blood pressure with a stethoscope.

Here again should be pointed out that the hypertensive curve with a low diastolic end point has a far different prognosis from the curve with a high diastolic end point. One nowadays suspects thyroid dysfunction in the cases with great pulse pressure and low minima.

The weird graphs produced by extra systoles and similar arrhythmias are, to say the least, intriguing. Such a record in the case of a fourteen year old boy is reproduced in Fig. 4. This arrhythmia was so great that I made an electrocardiogram (Fig. 5). It seems to me that the discovery of such arrhythmias and the limitation of unnecessary strains is worth while.

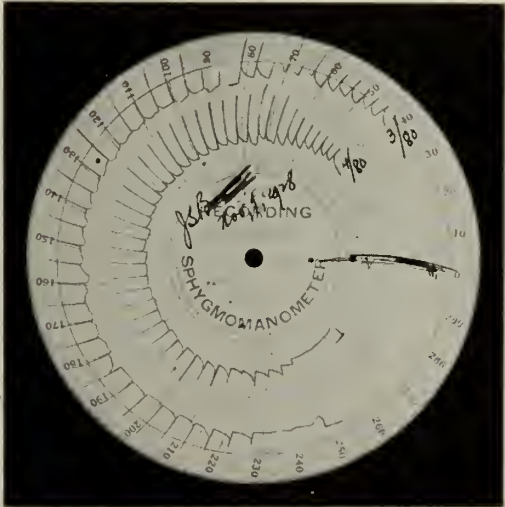


Fig. 8. Curve in heart block.



Fig. 9. Curve from right arm in aortic disease.

Another arrhythmia, found in the case of a sixty-seven year old asthmatic, is given in Fig. 6. This record should be sufficient to show that such asthmatics have something more the matter with them than merely allergy and serves to explain the failure of previous efforts to desensitize the patient.

The lack of energy shown by cardiopaths with chronic auricular fibrillation is readily intelligible when we see the curves made on this instrument, as illustrated in Fig. 7. We do not get such a vivid conception of the lack of blood pressure when we listen with the stethoscope.

The powerful action of the heart and arteries in heart block is shown in Fig. 8. After seeing this we are not so surprised that the people get about easily and do so well.



Fig. 10. Curve from left arm in aortic disease.

In aortitis the graph shows a difference between the right and left arms, which in using our stethoscopes we have often thought due to technic. It has proven to be real. The difference is greater the poorer the patient's condition. By studying this difference the physician can learn when it is necessary to put the patient to bed and when it is safe to let him go about his business. This difference is illustrated in Figs. 9 and 10.

The relation between auscultatory blood pressure and the graphic record is shown by noting the small black crosses in the accompanying illustrations. The auditory systolic pressure and graphic systolic pressure tend to approximation in normal cases. Where the patient's temporary pressure is lower than that to which it has formerly attained the pen starts writing before one hears the sound. On the other hand when a patient is excited and driving his pressure above his ordinary level we hear the sound before the pen moves. Thus the graph tends to give us greater accuracy than the stethoscope.

1000 Rialto Building.

METHYL CHLORIDE POISONING FROM DOMESTIC REFRIGERATORS

Arnold H. Kegel, William D. McNally and Alton S. Pope, Chicago (Journal A. M. A., Aug. 3, 1929), found that the narcotic properties of methyl chloride have been recognized for more than fifty years. Its toxicity is given as one-fourth that of chloroform. Recent carefully controlled studies in the U. S. Bureau of Mines show that exposures of from ten to twelve hours to concentrations of the gas as low as 0.12 or 0.15 per cent are sufficient to produce death in guinea-pigs and that such exposure results in characteristic pathologic changes in the experimental animals. The authors reviewed the literature which showed forty-three reported cases of poisoning with one death from methyl chloride, incidental to its use in ice machines and refrigerators. During the past year there have been reported in Chicago twenty-nine cases of poisoning by commercial methyl chloride gas, resulting in ten deaths. Poisoning with commercial methyl chloride gas produces a characteristic clinical picture, of which the outstanding symptoms are drowsiness, mental confusion, coma, nausea, vomiting and in severe cases convulsions. The temperature, pulse and respiratory rate are all increased, and anuria usually occurs. The blood picture is suggestive of a primary anemia, with practically no regeneration during the first week. Hemoglobin falls with the red count and there is a moderate leukocytosis. The blood pressure is usually decreased. Examination of the urine indicates transient acute nephritis. Formic acid was found when the test was made early. The sequelae noted are suggestive of injury to nerve cells, followed by progressive degeneration. Human cases post mortem showed practically the same pathologic changes as experimental animals killed by exposure to low concentrations of methyl chloride gas. All cases of methyl chloride poisoning reported in Chicago have occurred in kitchenette apartments, having multiple unit refrigerator systems and where a leak was discovered in the apartment unit.

WASHINGTON UNIVERSITY CLINICS

MULTIPLE TUBERCULOUS LESIONS OF BONE IN ADULTS

GEORGE E. NESCHE, M.D.

Presented at the Friday Morning Conference.
From the Medical Service of Barnes Hospital.

Recently two adults with remarkably extensive tuberculosis of bone have been observed in Barnes Hospital. Considerable difficulty was encountered in obtaining definite information concerning the frequency of such cases and, in reviewing the literature, few cases with a similar degree of involvement could be found.

Case 1. Male negro, aged 26, admitted to Barnes Hospital in August, 1926, where he was studied for four months before his death. He had previously been seen in the outpatient department in August, 1925, when he complained of pain in his back. A hypertrophic change in the lumbar vertebrae associated with chronic prostatitis and seminal vesiculitis may have explained his difficulty at this time.

During the autumn of 1925 he wore shoes which were too large for him and injured the fourth toe of his right foot. It continued to be red, swollen and painful throughout the winter but it was not until February, 1926, that pus was discharged. When seen in March his general examination was negative except for a slight general glandular enlargement. The toe was considerably swollen and on incision showed much vascular granulation tissue but little pus. The patient was sent to a hospital where the toe was amputated. Unfortunately, no microscopic examination was made.

On his next visit to the dispensary he was very ill and was sent to Barnes Hospital. He complained of having suffered severe pain in the back, right shoulder and hip for a month. Upon examination the following abnormalities were noted: His temperature was 102° F.; a few cervical, submental and submaxillary lymph nodes were palpable and in the posterior pharyngeal wall there was a mass about the size of a chestnut. There was some pain and stiffness on motion of the neck. Moderate wasting of the chest muscles had occurred and impairment of resonance in the apices with increased whisper and very harsh breath sounds over the anterior portion of the left chest were noted. There was slight weakness of the left leg with some spasticity but no pathological toe signs. Adduction and abduction in the right thigh were limited and painful. The entire spine showed limitation of motion with a swelling lateral to it on the right at the level of the second to fourth lumbar vertebrae. Deep pressure over a corresponding area on the left side was painful. Over the head of the right radius there was a soft fluctuating swelling, but the elbow was normal to the X-ray. A fluoroscopic examination of the chest revealed a mass in the upper right mediastinum. It had a smooth rounded edge, moved with the pulsation of the heart, but was not expansile. X-ray plates showed it to be a circular clean-cut area of density about 3 cm. in diameter, projecting from the right wall of the mediastinum at the level of the 6th rib posteriorly. It bore no relation to the cardiac shadow. A small amount



Fig. 1. Case 1, showing rounded mass to right of shadow of great vessels in upper mediastinum. It proved to be a cold abscess arising from tuberculous progress of the thoracic vertebrae.

of coarse parenchymatous mottling was present throughout each lung field. There was no anemia and only a moderate leukocytosis. The Wassermann was negative. Fluid aspirated from the right elbow was thick, yellow and blood tinged. No tubercle bacilli were found and the guinea pig inoculation was without positive results. Shortly after admission the patient was unable to void and was catheterized. Although the urine was in all gross respects normal it was injected into a guinea pig. Two months later the pig died and on examination was found to be tuberculous.

As the result of a fall sustained while in the ward the patient suffered a flaccid paralysis from the level of the third dorsal segment. There was extreme tenderness over the upper dorsal region and pressure produced crepitus over the second, third and fourth dorsal vertebrae. The X-rays of the spine showed lesions of bone destruction without regeneration in the third, fourth, fifth and sixth cervical; fourth, fifth, eighth and ninth dorsal, first and fifth lumbar and also in the sacrum. Plates of the right elbow, which had been negative to the X-rays on the first examination, showed a poorly defined rarefied area with slight thickening of the posterior cortex of the humerus.

About two months after admission the right knee became swollen and on tapping two types of fluid were obtained; from the joint cavity 40 cc. of thin straw-colored fluid, and from the prepatellar bursa about 25 cc. of thick blood tinged fluid. Guinea pig inoculations from both were negative. Aspira-



Fig. 2. Case 1, showing destructive process in bodies of 4th, 5th and 6th cervical vertebrae.

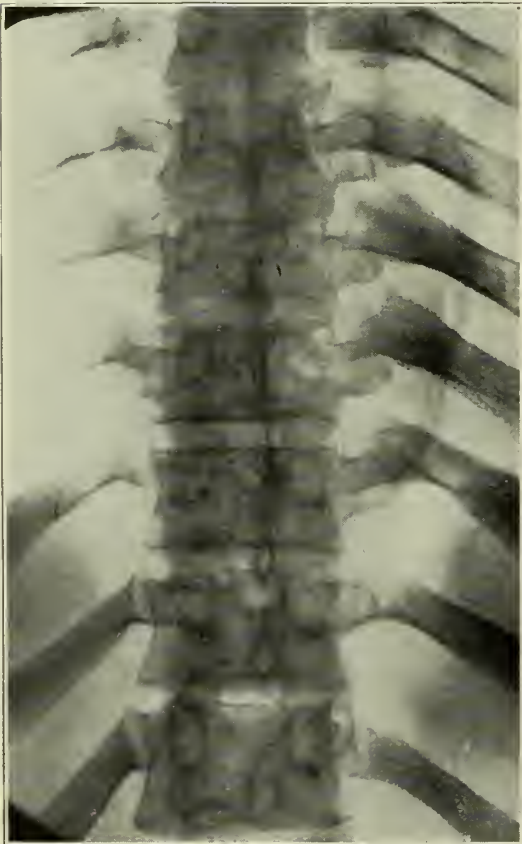


Fig. 3. Case 1, showing tuberculous involvement of thoracic vertebrae.

tion of the right elbow a little later produced "grumous" fluid which gave positive results on guinea pig inoculation.

The mass which was seen on admission in the posterior pharynx gradually increased in size until it caused the voice to assume a nasal quality. Finally, it began to obstruct breathing and swallowing. It was never painful. Almost three months after admission a mass appeared on the right side of the neck. It was painful, fluctuant and rather soft, but without increased local heat. Incision released about 200 cc. of thick, green, foul smelling pus and caused a diminution in the size of the mass in the pharynx. Culture produced a nonhemolytic staphylococcus aureus. The guinea pig inoculation resulted in lesions which may have been tuberculous although the animal died only ten days after inoculation.

While in the hospital the patient became steadily worse. He had a septic type of temperature with extreme variations,—between 95.2° and 105° F. Repeated blood cultures were negative. His white blood cell count was low, generally around 8000, although at times it rose to 12,500. There was a gradual fall in the red count and hemoglobin to 2,224,000 and 28 per cent (Newcomer), respectively. The differential remained normal throughout. Decubitus ulcers formed and could not be healed. For a period of about five weeks a positive guaiac test was obtained in the urine. It disappeared as suddenly as it began; the only other evidence of kidney involvement was an occasional faint trace of albumin



Fig. 4. Case 1, showing destructive process in the 1st and 5th lumbar vertebrae and sacrum.

and a few pus cells. He died in December, 1926.

At autopsy large decubitus ulcers were seen on both hips exposing the bone; a superficial ulcer was found over each lateral malleolus. On the right side of the neck was a sinus which communicated with a large pocket on the anterior surface of the spinal column. The vertebrae at this level were not roughened or irregular. Since the pocket was anterior to the prevertebral fascia it was the pathologist's opinion that it was due to broken down lymph nodes. Methylene blue injected into the sinus was not found in the thorax. There was no fluid in the abdomen or chest. The lungs were collapsed, gray and crepitant throughout. Fibrous adhesions were present at the apices and on the right lower lobe. Cut section showed only a few tubercles but a small amount of bronchopneumonia and some caseation in the right apex and in the microscopic sections. The tracheobronchial lymph nodes were enlarged and firm. The liver was large and on the anterior surface of the dome there was an irregular scar 2 cm. in diameter and about 1 cm. deep. Microscopically the parenchymal cells were seen to be vacuolated. The sinusoids were dilated and filled with a precipitate and red blood cells. There was considerable sclerosis of the portal spaces, and the lobules were marked off by fibrous tissue in which there was lymphocytic infiltration. No tuberculosis was seen. Except for an increase in fibrous tissue, the spleen was normal and no evidence of tuberculosis was made out. The kidneys weighed 400 gms. together. The capsule stripped readily and although both organs were cut into thin slices there was no gross evidence of diseased tissue. The microscope revealed interstitial scarring with some tubular necrosis. In places there was some infiltration of lymphocytes but no tubercles were seen. Except for a slightly thickened mucosa, no lesions were noted in the urinary bladder. The prostate was small, firm, regular and contained necrotic debris with desquamated epithelium and a few polymorphonuclear leukocytes. In the mucosa of the transverse colon there was a light colored area about 2 cm. across in which there were several small tubercles. The submucosa was thickened and edematous and contained a few tubercles and small areas of necrosis. The mesenteric and retroperitoneal lymph nodes were enlarged and firm and microscopically were seen to be tuberculous. Cold abscesses were found on the 4th and 5th, and 8th and 9th dorsal vertebrae, the tuberculous process responsible destroying much of these bones. The psoas abscess on the left was found to take its origin from a process in the region of the sacro-iliac synchondrosis where a hole admitting the tip of the little finger was found. On the entire face of the sacrum was another distinct abscess under the periosteum. Removal of its caseous contents left the sacral vertebrae bare and eroded. Amputation of the right fourth toe had been done. The entire left leg was swollen and both knees showed evidence of fluid. That in the left knee joint was thick and purulent as was that in the prepatellar bursa. Rarefaction of the tibial tuberosity with necrosis and erosion along with epiphyses of the tibia and femur was evident. Sections of the femur at this point showed scarring of the marrow and calcified areas in the cartilage. The right knee was not disarticulated.

The chief interest of this case lies in the extraordinarily widespread bone involvement. Definite lesions were found in the 3rd, 4th, 5th and 6th cervical vertebrae, in the 4th, 5th, 8th

and 9th dorsal, in the 1st and 5th lumbar and in more than one part of the sacrum. Associated with these were many localized abscesses in the surrounding soft parts. Although no pathological examinations of the amputated toe were reported it is practically certain that this was also a tuberculous process. In addition, there were lesions in the right radius extending into the elbow joint and an involvement of the left knee joint which seemed to arise from lesions in both the lower end of the femur and the upper end of the tibia. There was a generalized enlargement of the lymph nodes many of which were obviously tuberculous. In general, the lymph nodes were not broken down but there was more than a suspicion that the swelling in the retropharyngeal region, which lay anterior to the prevertebral fascia, arose from the disintegration of diseased glands. The tuberculous changes in the lungs are notably slight when one considers the unusual degree of involvement elsewhere. The lesions in the colon were not extensive.

Clinically there were many points of interest. In spite of the temperature and leukocytosis, the possibility of multiple myeloma or general carcinomatosis of bone was considered because of the multiplicity of bone lesions.

The first definite proof of the tuberculous character of the malady came, strangely enough, from the production of tuberculosis in a guinea pig by inoculation of urine which to all the usual methods of examination appeared normal. This is of greater interest since the later pathological examination of the kidneys and bladder revealed no tuberculous lesions. It is not, however, an isolated observation. Lawrason Brown¹ quotes several reports in which it is stated that tubercles were present in other parts of the body, that bacilli were found in the urine on guinea pig inoculation but that at autopsy no lesions were demonstrable in the kidneys. It is Brown's opinion that tubercle bacilli can pass through normal kidney tissue without injury to it. Spitzer and Williams² have recently questioned this conclusion. They believe that the tubercle bacilli are not found in the urine except when there are tuberculous lesions in the urinary or genital tract. After a careful study they state that if serial sections are made one will find somewhere in the passages the lesion responsible for the appearance of the bacilli in the urine. Unfortunately, serial sections were not made of the genito-urinary tract of our patient. The red blood cells in the urine during the last few weeks of the patient's life might indicate a local lesion.

At the time of the first examination in the hospital the masses, which later were recog-

nized as cold abscesses, seemed quite bewildering. The superficial swelling to the right of the 2nd, 3rd and 4th lumbar vertebrae was unaccompanied by local distortion of the vertebrae. The rounded mass in the dorsal region (Fig. 1) first recognized by X-ray examination might easily have been confused with a mediastinal growth or even with aneurysm. Although the lesion in the posterior pharynx was noted as a small localized mass about the size of a walnut at the time of admission, its true significance was not entirely appreciated until the fluctuant swelling in the side of the neck was drained. The psoas abscess and the cold abscess on the posterior surface of the sacrum were not recognized as such and were perhaps not clinically apparent except as contributory factors in the patient's severe generalized pains.

Case 2. A colored housewife of 26 entered the hospital complaining of painful swelling in her left clavicle, right scapula, right humerus and right frontal bone.

A sister had had "scrofula" twelve years before. She herself had had at the age of two an attack of pneumonia which was the only serious illness until September 1925 when she had a panhysterectomy because of "pus tubes." She gave no history of a luetic infection.

In September, 1928, she first noted some shortness of breath, particularly when working hard. About a month later a small knot appeared on her left clavicle. It was "hard as bone," did not move and was sometimes tender to touch. In November she began to suffer from severe headaches of a generalized character and had some trouble with her eyes. This lasted only for a few weeks. A nodule similar to that on the clavicle appeared in the right frontal region just inside of the hairline. During the latter part of November another tumor appeared on her right arm which became quite painful, especially at night. About the first of January, 1929, another nodule appeared on the right scapula. All four of the swellings gradually increased in size, softened and became much tenderer on pressure. During the month before her admission she had occasional night sweats of a rather mild nature.

Examination revealed an irregular fever of remittent type varying from 95° to 104.7° F. Her head was held to the right and there was some swelling with marked tenderness immediately below the left ear where a small shotty lymph node could be felt. It was exquisitely tender and was apparently attached to the underlying fascia. At the left sternoclavicular junction there was an oblong fluctuant mass measuring 2 x 4 cm. exquisitely tender and seemingly attached to the clavicle. A similar mass, fluctuant and also attached to bone, was felt over the right scapula. The right arm moved well but the patient complained of exquisite pain on palpation of the humerus just above the elbow. Epitrochlear glands were palpable on both sides. There was an old scar in the left axilla. Examination of the eyegrounds revealed a bilateral choked disc. The visual fields were moderately contracted. All reflexes were normal and there was no evidence of cranial nerve involvement.

The urine on admission showed no albumin or



Fig. 5. Case 2, showing large swelling in right frontal region.

other evidence of kidney disease. About three weeks later, albumin appeared and was accompanied by red cells, white cells and epithelial and coarsely granular casts. These findings lasted for a period of about two weeks and then disappeared. The red blood cell count was within normal limits. The white count varied between 10,000 and 12,000, with no abnormal cells. The Wassermann and Kahn reactions were negative both in the blood and spinal fluid. The colloidal gold curve was also normal and there was no increase in spinal fluid protein. The blood culture was negative.

X-ray of the right humerus showed in the lower portion of the shaft approximately 5 cm. above the inferior extremity a roughly circular area of decreased density, indicative of loss of bone substance. Apparently this was within the medullary cavity and



Fig. 6. Case 2, showing area of destruction in distal portion of shaft of humerus.

the cortex of the bone on either side showed well marked periosteal proliferation laminated in type.

The X-rays of the skull showed many points of interest. There was a generalized increase in density



Fig. 7. Case 2, showing areas of erosion and irregular thickening of bones of skull.

of the bones in the cranium and face. They had a somewhat smooth homogenous appearance and were much increased in thickness throughout. In the squamous portion of the left frontal bone at a point approximately 3 cm. from the midline, there was an oval area of decreased density showing no bone substance and apparently communicating with a somewhat larger irregular area involving the external table of the skull. A somewhat similar process was observed in the extreme antero-inferior portion of the squama. The films of the clavicle showed a slightly questionable ovoid area of rarefaction in the sternal extremity. From the X-ray appearance, the bones were thought to be involved in a syphilitic process.

X-ray of the gastro-intestinal tract was negative. The chest plate showed no evidence of parenchymatous change.

Two biopsies were done. The swelling over the clavicle was found to be an abscess from which typically caseous material was discharged. It was thought by the surgeons to be "rather characteristic of tuberculosis." The cavity was explored and found to extend down to the sternoclavicular joint. At no point was the bone exposed nor was the periosteum or bone apparently roughened. Microscopic examination showed only chronic inflammation. The second biopsy was done on the mass over the spine of the scapula. One half of this material was fixed and sectioned, the remainder was ground up and injected into the testicle of a guinea pig. This material was examined by Dr. Howard McCordock, of the department of pathology, who made the following report:

Sections of the original material showed a granulomatous inflammatory tissue invading some voluntary muscle fibers. Many epithelioid cells were crowded together forming large flat masses. Poorly developed giant cells were found in a few places. No typical Langhans' giant cells were seen. The connective tissue strands between the muscle bundles were infiltrated with lymphocytes and plasma cells. Here also there was a great intimal proliferation of the small blood vessels and perivascular collections of lymphocytes. No tubercles were found. Dr. McCordock thought this resembled syphilis or some other granuloma more than it did

tuberculosis. Many acid-fast stains showed no tubercle bacilli. Gram stains showed no bacteria, fungi or mycotic organisms. Levaditi stains revealed no spirochetes.

The guinea pig developed a small nodule in the groin which at the end of ten days was excised and stained for spirochetes, tubercle bacilli and bacteria as well as the routine hematoxylin and eosin stains. The nodule proved to be a lymph node which was enlarged and in which there were several areas of closely packed epithelial cells with the central necrosis so characteristic of early tuberculosis in guinea pigs. No giant cells or tubercles were found. The acid-fast stain showed a profusion of long slender acid-fast bacilli, many within the large mononuclear cells. No spirochetes, bacteria or mycotic organisms were found. The rabbit developed a small indurated nodule in the injected testicle.

Dr. McCordock considered the infection to be due to a human type of tubercle bacillus.

After the diagnosis was established the patient refused to remain in the hospital. Since she came from another state we have unfortunately been unable to follow her.

In the first clinical examination of this patient it was thought that she had syphilis with multiple gummata of the bones. The X-ray pictures tended to confirm that opinion and, indeed, were first reported by the radiologist as indicative of syphilis. It is most interesting that the pathological examination of the tissue removed from the scapula convinced the pathologist at first that he was dealing with syphilis. The diagnosis of tuberculosis was established only after the production of tuberculous lesions and the isolation of tubercle bacilli in a guinea pig. The difficulty encountered in this diagnosis suggests that certain similar lesions often called syphilitic from clinical examination alone might on closer scrutiny prove to be tuberculous. It is significant, however, that this patient had no history and no serological evidence of syphilis.

The choked discs were not satisfactorily explained. There were no other abnormalities in the neurological examination except slightly contracted visual fields. It was suggested, but not proven, that the bone lesion in the frontal area or a similar lesion had invaded the inner table of the skull and had pressed inward on the dura. It was also considered possible that the extraordinary thickening of the skull so apparent in the X-ray might have decreased the cranial capacity and so caused pressure.

DISCUSSION

It is said that less than ten per cent of all cases of bone and joint tuberculosis occurs after the age of 20. A considerable search of the literature has revealed few cases that are comparable to the patients whom we have observed. A number of references which are somewhat pertinent may be mentioned. Verneuil³ in 1851 demonstrated the bones of a pa-

tient with extensive multiple lesions but unfortunately did not state the age of his patient. Dubousquet Laborderie⁴ reported a case in a man of 47. Legendue and Philibert⁵ reported a case in a woman of 35, and Frankel⁶ a case in a man of 28. Rosenblatt⁷ gave an excellent description of his patient, a man of 28, while Voute⁸ reported a case in a woman of 25. Goldthwaite, Painter and Osgood⁹ mentioned in their textbook a woman of 33. Besides these scattered cases of tuberculosis involving many bones in adults there is a considerable literature on the occurrence of multiple lesions in the spine. The papers of Peabody¹⁰ and McKinnon¹¹ may be mentioned.

While information concerning the occurrence of multiple bone tuberculosis in adults is difficult to obtain from the scattered literature, it is probable that such cases are not very uncommon. This is indicated by a review of patients suffering from tuberculosis of bone who have been treated at Barnes Hospital. Although all histories of osseous tuberculosis were studied those cases were discarded in which the patient was under 17 years of age when the disease began. This division, while arbitrary, was made because at the age of 17 growth is practically complete and ossification well under way. There remained 299, of which 18, or 6 per cent, were found to have multiple foci. In these 18 patients, 49 lesions were found. It must be stated, however, that neither in the literature nor in the records of Barnes Hospital has any adult case been found in which the involvement approached in severity that observed in our first patient.

It is important to discuss in connection with these cases the mechanism by which bone tuberculosis is produced and the reasons why it is more frequent in children than in adults. It was found by Willis and Krause¹² that tubercle bacilli when inoculated into the skin of non-immune guinea pigs are carried away almost immediately by the lymphatics. Enucleation of the inoculated area within three hours usually allows the development of visceral tuberculosis which always is found if the enucleation is delayed for four hours. Within three or four days the tubercle bacilli make the circuit of the body and long before histological changes take place they can be found in the lymph nodes and the spleen. The studies of Krause and his associates thus indicate that tuberculosis has more of the characteristics of a generalized infection than was formerly appreciated. The actual spread of infection may take place by direct extension of foci, by transference through lymphatics, by spreading through ducts or other visceral channels, or by vascular routes.

Koenig¹³ was the first to suggest the embolic theory of bone tuberculosis and was led to this opinion by the frequent findings of wedge-shaped sequestra. By injecting tubercle bacilli into the blood stream Krause and Miller¹⁴ were able to confirm this idea. In 1904 Lexer¹⁵ studied the capillaries of the bones and found that they were end vessels with the finer ramifications directed toward the epiphysis. Inasmuch as the epiphysis is the point of growth in the long bones it is to be expected that the greater blood supply would be at this point.

The observation that these capillaries are end vessels was recently confirmed by Kolodny¹⁶ who made an elaborate study of the bones of new-born infants. He injected the vessels with metallic substances and X-rayed them; he injected the vessels and cleared away the bone; he also made microscopic studies with wax reconstructions. He found that anastomosis did not take place. In this manner he studied the spine, hip, knee, shoulder and costal cartilages, which locations he states comprise 87 per cent of all tuberculous bone lesions. His studies are important in explaining the selective localization of lesions in tuberculosis of bone.

Bone and joint tuberculosis, according to Allison¹⁷ should not be contrasted. In his study of cases he found that in most instances of bone tuberculosis joints were involved and that in each and every instance of joint disease there was involvement of the bone. He found no evidence of an instance of pure synovial tuberculosis. Since the tuberculous focus is generally in the epiphysis it is not strange that the joint membrane should be involved by direct extension. Accepting the preferred idea, and the one so strongly supported by the work of Willis and Krause,¹² that tuberculosis is a generalized infection it is readily seen that the bones would be affected at the points where the vascularity is greatest. Inasmuch as these vessels are end vessels an infection localizing in one naturally causes the death of, or at least a greatly lowered resistance, of the tissues peripheral to the focus of infection. This suggests that once infection has started in tissues poorly supplied with blood it may progress almost indefinitely. From these observations it is also evident that during the growth period possibility of infection is much greater, and when the epiphyses become ossified and the blood supply greatly diminished the chances for infection in these locations are correspondingly lessened. This factor seems to explain quite satisfactorily why bone tuberculosis is so much more common in children.

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THE BONE CHANGES IN SICKLE CELL ANEMIA WITH NOTE ON SIMILAR CHANGES OBSERVED IN SKULLS OF ANCIENT MAYAN INDIANS

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Presented at the Friday Morning Clinical Conference.

Though it has been but a short time since they were first described, the skeletal manifestations of certain types of anemia are beginning to attract the attention which their importance merits. As far as is known bone changes occur only in the anemias of congenital origin. There is nothing comparable to them in the anemias or other blood dyscrasias of adult life or of acquired nature. However, it is conceivable that skeletal changes may in the future be found in such conditions. Up to the present time they have been reported in von Jaksch's anemia and sickle cell anemia only. Since attention was called to the radiological findings in these conditions, through the kindness of Dr. Reynolds,¹ the X-ray department has sought the opportunity of studying such a case. We have recently had this wish gratified in an example of sickle cell anemia (drepanocytosis). The skeletal changes found in this case are similar to those described by others and are so remarkable in their radiological aspects as to merit their presentation here. Any reference to sickle cell anemia should recall the notable contributions made to the knowledge of this affection by members of the Washington University Medical School,

namely, Cook and Meyer,² Emmel,³ and Myamoto and Korb.⁴

The first description of osseous changes occurring in this disease are found in the autopsy of Graham's case.⁵ These are so important that his autopsy findings dealing with bones is quoted. Reading this report one would anticipate finding, on radiological examination, changes identical with those shown in Figs. 3, 4 and 5. It should be stated that Graham's case was an adult, aged 60, and also that he reported no change in the skull (which was opened). The excerpt follows:

As would be expected, the outstanding lesions are those of the hematopoietic system. All three of the long bones examined show rather remarkable gross and microscopic changes. The picture is essentially that of a chronic infectious or toxic injury of the marrow tissue and medullary bone with subsequent repair processes and compensatory hyperplasia. There is focal necrosis destroying the soft tissue and injuring the bone trabeculae. The necrotic marrow is being replaced by a loose granulation tissue while bone repair is also in evidence. At times the process of new bone formation has proceeded so far as to *narrow and distort or even to destroy the original marrow cavity.* (Italics ours.) In all three of the previous necropsies the marrow has been reported as hyperplastic but there is no mention of lesions affecting the bone substance.

In this connection it should be said that Sydenstricker, Mulherin, and Houseal⁶ reported the autopsy of a child with sickle cell anemia in which marrow changes were found in the ribs but the condition of the bone was not otherwise noted.

The observations of Graham appear to have escaped the notice of later writers interested in the skeletal alterations present in sickle cell anemia, attention only recently having been drawn to them during life through X-ray examination. The first observation of this sort was made by Cooley and Lee.^{7 8} In their papers these authors fail to note a full description of the bone changes found by them and also von Jaksch's anemia and sickle cell anemia are confused. In a later communication they cite a case of Grulee's with skull changes similar to those they previously described and in which there was "porosity" of the long bones. In their first communication they speak of enlargement of the bones of the skull and face and also state that the long bones showed striking changes, the nature of which is not described but they refer to these changes elsewhere in the article as a rarefaction of the epiphysial ends of the long bones.

Karshner,⁹ of Los Angeles, has described bone changes in von Jaksch's anemia, one of his cases being included in the series of Cooley and Lee and described by them. Karshner's description is appended:

Von Jaksch's anemia, anemia infantum pseudo-leukemica, a doubtful clinical entity. In the later stages a second change enters the picture in the nature of new bone formation showing as striations perpendicular to the tables of the skull. *The pelvis, spine, ribs, scapulae, and bones of the hands and feet are very porous. The metacarpals are expanded. The cortex of the long bones is very thin. The medulla is unusually transparent, and within it the trabeculations are sharp and finely periled with large interspaces. The changes are greatest in the metaphyses, the disease affecting all the bones of the body. The bone changes are evidently a reaction of the marrow to prolonged overstimulation beginning in the cranium before the cortex is firm enough to prevent overgrowth.*" (Italics ours.)

The description of the bone in these cases is treated at some length because of the striking contrast with the findings in the case herewith presented, though it must be borne in mind that these reports of Cooley and Lee and of Karshner deal with children whereas our patient is an adult, and, furthermore, it is to be recalled that the pathological report of Graham was on an adult.

The following case is presented:

J. A. M., male negro, aged 24, admitted to Barnes Hospital March 16, 1929.

History in brief: Attacks of "rheumatism" with fever at ages 12, 19 and 21. Large indolent ulcers on legs at 8 years of age, and again at age 10. Three years ago, and again two months ago, suffered attacks of fairly severe pain in right side of abdomen, with occasional attacks of pain in epigastrium. At times the latter seemed to follow the ingestion of food. Patient had noticed the urine was dark reddish-brown at various times.

Physical Examination.—Pallor of the mucous membranes; greenish-yellow color of the sclerae; heart slightly enlarged with systolic murmur at apex; liver palpable; slight diffuse tenderness over abdomen. Urine revealed nothing of importance. Blood showed 3,500,000 red blood corpuscles, 9,100 white. Hemoglobin, 70 per cent. The erythrocytes varied in size, shape and staining qualities. Reticulocytes 2.3 per cent. Sickie-shaped cells were found on staining. In the vital stain there was observed an endotheliocyte with an engulfed sickle cell. Wassermann and Kahn reactions negative. There was a suggestion of deformity of the right kidney pelvis pyelographically.

From the foregoing it is seen that in the history, symptomatology and blood findings this case is a classical example of sickle cell (drapanocytic) anemia.

Radiological examination of the skeleton revealed the following: marked thickening of both parietal bones. The total thickness of this portion of the skull was 100 per cent greater than the remainder of the calvarium. (Figs. 1 and 2). This change seemed to be confined to the diploe, the inner table was present and unaffected but the outer was not defined. The thickened zone had a peculiar and striking structure, with dark radiating lines extending outward, perpendicular to the bone surface and producing an appearance unlike that in any other condition found in the skull. The suture lines of the vault were poorly marked and there was almost complete union of the coronal. Except for the parietal bone, the skull and the bones of the face were not affected as far as could be demonstrated



Fig. 1. Lateral view of skull. Note thickening of parietal bone and characteristic striated bone structure.

by X-ray examination. The long bones of the hand and the radius and ulna on each side showed great decrease in the width of the medullary cavity. (Figs. 3 and 4.) A possible similar slight change was present in each humerus but not well marked. There was no enlargement of the involved tubular bones and the medullary space was diminished because of increase of the cortical bone which encroaches on the marrow cavity. In the case of the second row of phalanges of the fingers there was complete obliteration of the medullary cavities. Changes similar to those in the hands were observed in the metatarsals and phalanges of the toes (Fig. 5) but the bones of the leg were uninvolved. The cancellous portions of the long bones were unchanged. The



Fig. 2. Anteroposterior view of skull, showing bilateral symmetry of bone changes.



Fig. 3. Postero-anterior view of wrists and hands, showing cortical thickening of cortex in long bones.

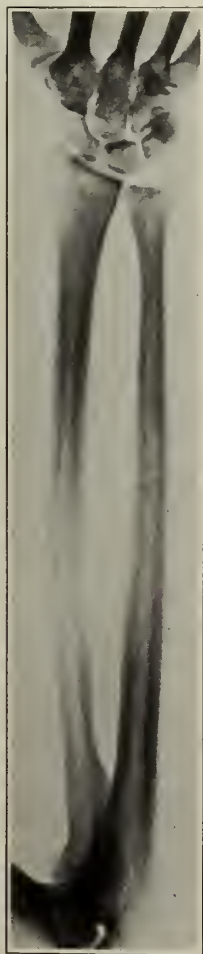


Fig. 4. Postero-anterior view of bones of forearm, showing narrowing of medullary cavity and cortical thickening.



Fig. 5. Postero-anterior view of feet. Changes in long bones identical with those observed in hands.

remainder of the skeleton was of normal radiographic appearance.

The changes in the skull in sickle cell and von Jaksch's anemias are radiographically and probably pathologically identical. Whether this is true or not of the long bones of the extremities in the two diseases will have to be determined by further investigation, for the X-ray observations in the latter of these two diseases have been made on children exclusively whereas our patient and that of Graham were adults. It is possible that bone changes other than those in the skull are merely later developments in the disease.

Sickle cell and von Jaksch's anemias are considered by those who have given them the most study to be the result of a congenital anomaly of that portion of the hematopoietic system concerned with the development of erythrocytes.

If understood correctly, Cooley and Lee and Karshner incline to group these two diseases together and ascribe the production of such bone changes as are observed to the same mechanism. In addition to the clinical evidence, blood findings and racial factors which separate these two diseases, we believe that the difference in the bone changes in the appendicular skeleton constitutes an additional point of distinction between them. For this reason we advance as a diagnostic point the nature and extent of the skeletal findings in our own case and in the one reported by Graham.

In our department we have had no opportunity to study a case of von Jaksch's anemia. It would be interesting to contrast the findings in the long bones in such a case with those observed in this patient and to contrast them with the reports of others.

For purposes of comparison, the X-ray studies on the skull, hands and feet of two colored children with the "sickle cell trait" but without the manifestations of sickle cell anemia revealed the skeleton to be normal. Through the kindness of Dr. Louis Behrens we had the opportunity of making comparable X-ray studies of members of three generations of the same family who have familial hemolytic icterus. There are no bone changes detected in any of them.

A word may be said in regard to the mechanism active in the production of the bone changes. These changes occur without external enlargement save in the case of the parietal bones. They are also found within the usual cortical outlines of the bones, even in the case of the bones of the skull. This indicates that the process is intra-osseous. The question arises, whether the anemia occurs through the encroachment on and destruction of the marrow by the thickening cortex or whether the degeneration of the marrow eventuates in the bone changes which might be considered compensatory phenomena. These points present a fruitful field for investigation. Thickening of the cortex and the consequent obliteration of the medullary spaces in the long bones of the hands and feet lead one to believe that the marrow disappears first and, because of its disappearance, bone is laid down to fill up the space the marrow formerly occupied. How this occurs can be explained by the hypothesis of Leriche and Policard,¹⁰ who think that the marrow degenerates and reverts to an indifferent connective tissue, whence, through metaplasia, it forms bone on the walls of the medullary cavity and increases the cortical thickness. The cancellous bone at the extremities of the involved tubular bones present no changes detectable by radiography. It would seem that the process as outlined above indicates that disease of the marrow is primary and the bone changes are secondary thereto rather than the reverse.

Some months ago Dr. George D. Williams, of the department of anatomy, submitted for our opinion the X-rays of skulls of Mayan Indians (Fig. 6) which he had secured while a member of an expedition to Yucatan investigating the ancient Mayan culture. Dr. Williams is authority for the statement that a very great proportion of these ancient skulls had a



Fig. 6. Oblique view of dry skull of ancient Mayan Indian (adult), showing thickening of parietal bone with peculiar striated appearance, striation being perpendicular to outer table of skull. Compare with Figs. 1 and 2.

peculiar characteristic thickening of the parietal bones with a striking X-ray appearance. Until there was an opportunity to study this case of sickle cell anemia, no opinion could be ventured as to the nature of the bone changes in the Mayan skulls. The changes in the skull in sickle cell anemia and the Mayan skull seem to be identical. (Compare Figs. 1, 2 and 6.) The high incidence of these bone changes in the Mayan skulls reported by Dr. Williams suggests the possibility that this people was greatly afflicted with sickle cell anemia, or a kindred disease. One may even conjecture that perhaps the wide prevalence of some such disease played a part in the downfall of Mayan civilization, an idea which is comparable to the theory that the decay of Roman and Greek civilization was ultimately bound up with the tremendous incidence of malarial infection in Italy and Greece. The condition of the Mayan skull is an interesting contribution to paleopathology.

Barnes Hospital.

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THE JOURNAL

OF THE

Missouri State Medical Association

NOVEMBER, 1929

EDITORIALS

MENTAL HYGIENE

It is idle to speculate on who first used the term mental hygiene for its original significance has been lost in the development of a movement largely initiated by Mr. Clifford W. Beers.

During a manic attack which lasted about three years Mr. Beers found himself in many different mental hospitals and received much harsh treatment. After his recovery he decided to direct his energy toward the improvement of the care and treatment of the insane. He wrote a book, "A Mind That Found Itself," which attracted wide attention. He organized the Connecticut Society for Mental Hygiene and later the National Committee for Mental Hygiene and many state societies one of which was the Missouri Society. He had much encouragement from Wm. James, the philosopher, from Dr. Wm. H. Welch, of Johns Hopkins, and later from many others. Dr. Thomas W. Salmon became the medical director of the National Committee and his wide sympathies and keen insight soon broadened the field.

Money came in from some of the great foundations and from private donors making it possible to finance surveys in many states. Dr. Samuel Hamilton was sent to Missouri to visit every place in the state where the insane might be found. This included all jails and almshouses. Dr. Hamilton's report issued in 1920 is still the most complete summary of conditions in Missouri and is being used constantly by the Survey Commission created by the last legislature. Mental hygiene soon grew to include activity wherever a mental factor explained a problem in public health, in education, industry, dependency, delinquency and crime.

In 1922 the National Committee financed by the Commonwealth Fund began demonstrations of methods in the treatment of conduct disorders in children. The first demonstration was in St. Louis and after a little delay the clinic was established in the department of public welfare and is going successfully. Los Angeles, Minneapolis, Cleveland, Dallas and

Philadelphia have such clinics following the stimulus given by the demonstration groups.

As we study conduct disorders in adults we are able in many instances to trace the departure from the average socially acceptable behavior far back into childhood. It seems rational to conclude that we must do what favorable molding of character is found possible while our material is still plastic. Our results in St. Louis are quite favorable and a second clinic privately endowed has been operating for about two years.

Juvenile courts are a recent development. The first one was organized in Chicago about 20 years ago and was aided by the splendid work of Dr. Wm. Healy, now with the Judge Baker Foundation in Boston.

The application of psychiatry to the problems of adult courts has made relatively slow progress—"the battle of the experts" furnishing much front page material.

In 1921 Massachusetts adopted the most advanced legislation as yet devised. It provided for the examination of all persons indicted for murder and all indicted a second time for any felony. The examinations are made by the department of mental diseases and the reports are available to counsel for the prosecution and defense and the court. The law has worked well and about 18 per cent of those examined have been found to be committable. The state has been spared the expense of many trials and more humanity has been shown the defendants.

The recognition of the part psychiatry may play in the treatment of offenders is still limited. There is no lack of data to show that we have something to contribute in at least 20 per cent but we do not at all claim that we can explain all crime on a psychiatric basis. The study of 608 consecutive admissions to Sing Sing by Dr. Glueck showed a much higher incidence of psychopathy than we have named. Our studies in St. Louis prove, we think, that there are individuals possible to identify in youth who cannot adjust to normal community life, who are in and out of jails, workhouses and penitentiaries throughout their careers and may finally wind up in a poorhouse to be buried later in the pauper field. It would seem that some high class human engineering might be needed to deal with such types; the question asked by the law, "sane or insane," is beside the point. There is a widespread belief that all humanity is divided primarily into two groups, the sane and the insane. Boundary lines however are subject to much dispute and are apt to shift without notice.

Alfred Binet from 1905 to 1911, when he died, wrote several papers describing a method

of estimating the native endowment of children and to him is due the credit for the invention of a psychological measuring stick, still limited in its application and requiring much scientific acumen to apply. The materials used in the tests are simple and their application can be quickly learned but the interpretation of the results has led the unwary on to thin ice with disaster to both examiner and subject. The enthusiasm aroused by Binet's work soon resulted in widespread estimates of mental levels of all types of delinquents, dependents and derelicts but neglecting the "run-of-mine" of the community. It was not until 1917-1918 when the war brought about the psychological examination of about two million men that we had a control group of first-class dimensions. In a local survey in St. Louis in 1922 we found the prisoners in the city jail averaged a little higher on the army alpha test than the draft soldiers. In spite of many blunders in application the tests have proved of great economic and social value. Massachusetts has undertaken to examine all the children in the public schools who are reported three or more years behind the average of their groups.

We do not know in Missouri the extent of our problem as we have no machinery for the identification of the feeble-minded except the rather rough measure of failures in the public schools, which do not get the worst types. These are often found in poorhouses and about the back kitchens of poverty stricken homes. In the average state there are about as many feeble-minded in need of institutional care and training as there are of the committed insane. As we have nine thousand feeble-minded in Missouri our provision for four hundred in St. Louis and eight hundred in the state school at Marshall is quite inadequate.

As we look back through the history of the care of the insane we find that very little discrimination was made between them and criminals until the eighteenth century. The first thought of the community was its own peace and comfort so the insane were chained in cells and fed through the bars. When in a very disturbed period of French history Pinel wanted to remove the chains from the insane in the Salpêtrière he was thought to be just a bit more insane than the objects of his compassion. This was in 1796 and about this time Wm. Tuke, a Quaker merchant in York, England, endowed a hospital for the merciful and understanding care of the mentally afflicted.

Arranging for the necessary finances, planning and building state hospitals, the purchase of land, the selection of lay and medical personnel, have been met in many ways in the various states. Financing has been by taxing

each county with the cost of maintenance of each patient, or by supplying funds from the general revenue for complete support of the hospitals. Missouri is one of only five or six states still adhering to the county care system. It is far from ideal; county courts to save money have kept many insane persons, usually senile cases, in the poorhouses or jails under conditions most distressingly unfavorable. States that have adopted the plan of support from the general revenue are pleased with its operation. In Missouri we had until 1921 local boards for each of the hospitals; each steward purchased supplies independently and each superintendent went to the legislature to recite his most urgent needs for buildings, equipment or repairs and the one with most political acumen "carried off the bacon."

The central board of control consists of six members, three from each dominant political party. Except the chairman, who devotes his entire time to the work, they are unpaid. There may or may not be a physician on the board. The board controls the four mental hospitals, the colony for the feeble-minded and the hospital for the tuberculous. These are located, respectively, at Fulton, St. Joseph, Nevada, Farmington, Marshall and Mt. Vernon. The board selects the superintendents who in turn select the assistant physicians with the consent of the chairman.

All state supported enterprises are of course subject to political influences and we have suffered severely in the past by losing valuable medical and nursing personnel when administrations changed. We are working toward better continuity of tenure and look hopefully to the future.

The last legislature at the suggestion of Gov. Caulfield, provided a commission to study the educational, penal and eleemosynary institutions, looking especially to the building needs. A study has been made of floor and cubic space and the exact degree of overcrowding ascertained. The City Sanitarium of St. Louis though not a state hospital was studied with the others. The commission has already recommended a psychopathic research hospital and will no doubt suggest relief from overcrowding.

In St. Louis commitment is effected either after a period of observation at the City Hospital or by examination and certificate of two physicians who have been listed by the hospital commissioner as competent in mental cases. In the latter instance the papers must be submitted to the commissioner and his order obtained for admission of the patient direct from the home.

It is of prime importance that the reception

service should be so equipped as to spare the feelings of the patient and relatives as well as to apply the most intensive study and nursing care to new admissions. The records of mental hospitals generally show that if the patient is not helped in the first year of treatment the opportunity is mostly lost. From an economic point of view every effort should be made to accomplish a cure at the beginning.

Industry is looking into mental hygiene methods of preventing friction among employees, the schools are looking to the visiting teacher to solve personality problems which handicap a number of children, social workers find much help from the analysis of the psychologist and psychiatrist in solving problems of dependency and delinquency, criminologists are appealing for aid in the sorting and treating of offenders. Our state hospitals should be organized into a department of mental diseases, and we should increase our medical and nursing personnel sufficiently to do field service from each hospital. Intramural care though important falls far short of fulfilling the obligation to the community. The department of mental and nervous diseases should render psychiatric service to the state prison, to the boys' reformatory at Boonville, to the girls' reformatories at Chillicothe and Tipton, to the children's home at Carrollton and to the two soldiers' homes.

NATIONAL SOCIETY FOR PREVENTION OF BLINDNESS

The National Society for the Prevention of Blindness will hold its annual meeting at the Chase Hotel, St. Louis, November 11 to 13 inclusive. This is the first meeting that the Society has held west of the Mississippi River. It is expected to be largely attended as it draws a large delegation from different parts of the United States to discuss the various phases of blindness and its prevention.

On the evening of November 11, Dr. William C. Gibson, medical officer in charge of the United States Veterans' Hospital at Jefferson Barracks, will be the speaker at a joint meeting with the American Legion and he will discuss the experience of the government in rehabilitating the ex-service men who were blinded or who suffered profound vision handicaps requiring special rehabilitation.

On the evening of November 12, the St. Louis Medical Society will have open house for all visiting ophthalmologists and at that time Dr. Daniel M. Velez, of Mexico City, Mexico, author of the many books on diseases of the eye, will speak of the work in Mexico.

Dr. Ernst Fuchs, the distinguished oph-

thalmologist of Vienna, Austria, recipient of the Leslie Dana Medal, which was awarded to him at Amsterdam this year, will also give a short talk. At this meeting the Robert Johnston prizes will be awarded. Mr. Robert Johnston, President of the Missouri Association for the Blind, offers three prizes to children who write the best essays on prevention of blindness, and three prizes to blind persons who write the best essays on occupations for the blind. Dr. Arthur Bostwick, Librarian of the St. Louis Public Library, will present the prizes.

MISSOURI TUBERCULOSIS ASSOCIATION

The twenty-second annual meeting of the Missouri Tuberculosis Association held at Jefferson City, September 26 and 27, was probably one of the most successful in its history. The medical session, being the second of its kind in connection with the annual meeting the first being at Kansas City last year, was outstanding in regard to both essayists and quality of papers presented. In building the program endeavor was made to present subjects of practical significance to the general practitioner of medicine. The papers were richly illustrated with both lantern slides and serial X-ray plates, which made them the more instructive.

The most outstanding progress in dealing with chronic pulmonary tuberculosis in recent years has been along surgical lines aimed at collapse of the diseased part of the lung. Without doubt, one of the most outstanding advocates of the surgical treatment of chronic ulcerative pulmonary tuberculosis is Dr. Evarts Graham, St. Louis, professor of surgery, Washington University Medical School, who read a most interesting paper at this meeting. Drs. Duff S. Allen, St. Louis, of Washington University Medical School, and Ralph Ehrlich, St. Louis, of Koch Hospital, reviewed chronic pulmonary cases treated surgically at Koch Hospital.

Other equally interesting papers on subjects of "Lung Abscess," "Early Diagnosis," "Current Treatment," "Indications for Pneumothorax," "Childhood Tuberculosis," "Bone and Joint Tuberculosis," "Tuberculosis in the Negro," "Light and Air Baths," and "Problems of Tuberculosis Control" were presented by Dr. J. J. Singer, St. Louis; Dr. Anthony B. Day, St. Louis; Dr. E. E. Glenn, Mt. Vernon; Dr. Sam H. Snider, Kansas City; Dr. Adolph Gallant, St. Louis; Dr. Park J. White, St. Louis; Dr. J. Albert Key, St. Louis; Dr. Charles S. Rosen, St. Louis; Dr. George D.

Kettlekamp, St. Louis, and Dr. Howard H. Bell, St. Louis.

The executive secretary, Mr. J. W. Becker, St. Louis, plans to collect these papers for publication and subsequent distribution to physicians in our state.

One half-day program was given to a discussion of tuberculosis control. The various phases presented were: Reporting Cases, Coercive Legislation, Disposal of Non-Residents and the Problem of Healthy Contacts, by Dr. Howard H. Bell, St. Louis; The Work of the Visiting Nurses' Association, by Mrs. Bertha O. Yenicek, R. N., St. Louis; The Control Program in a Rural County Nursing Service, by Miss Sallie J. Bryant, R. N., St. Joseph; Tuberculosis Control in Unorganized Rural Areas, by Miss Martha Sander, R. N., St. Louis; The Early Diagnosis Campaign, by Will Ross, Milwaukee, Wisconsin; Occupational Therapy, by Miss Geraldine Lermit, St. Louis; Postsanatorium Employment, by Mrs. Yenicek, Mr. Ross and others.

The evening dinner session was devoted to addresses by directors of four official state agencies contributing to the health and welfare of the state. The last afternoon was given over to addresses by representatives from six voluntary health agencies of the state.

Local arrangements were in charge of a committee representing the Cole County Medical Association of which Dr. E. E. Mansur is president. The other members of the committee were Dr. W. A. Clark and Dr. Ross Hopkins. The committee also arranged a luncheon for the visiting and local physicians.

MIAMI SESSION, SOUTHERN MEDICAL ASSOCIATION

When the Southern Medical Association, founded in 1906, began holding its annual conventions the city of Miami, yet in its non-age, numbered in population five hundred. During this period of scarcely a generation, Miami has metamorphosed, emerged from its chrysalis on Biscayne Bay, and now enjoys the title, Florida's Metropolis, with a year round population of 150,000.

Basking in the sun of tropical United States and blessed with the most equitable climate in North America, Miami is justly called the playground of the nation. This claim is substantiated by the annual influx of American pleasure seekers, Greater Miami playing host to two hundred thousand each winter.

In the brief space of a few years Miami has become nationally known as the convention city of the East, having been the convention city for

the Shriners, Elks, Lions and other national fraternal organizations. Miami was chosen for these conventions because she is built to play host to vast numbers of guests, her hotel facilities being as fine as can be found in any city in the country.

Amidst tropical beauty and sun-kissed seas, boating, horse and dog racing, swimming, superb golfing and fishing, polo, air rides, Jai Alai games and Madison Square Garden entertainments are offered our guests. Everything the ingenuity of man has perfected for pleasure, diversion and recreation that the tropical climate permits of, is awaiting you here at the American Riviera. Greater Miami will extend welcome to you as a body and the Dade County Medical Society will greet and entertain you and your families individually.

We realize the benefits this city and the local profession will derive from your favored visit. When our work is done and time for play has arrived you will find a brief visit by air to our neighboring foreign cities, Havana and Nassau, a fitting finale to the sojourn in the American tropics.

Speaking for Miami, the Dade County Medical Society bids each member and his family welcome, and urges you to attend this twenty-third convention of the Southern Medical Association.

NEWS NOTES

Dr. J. W. Shankland, St. Louis, former hospital commissioner, is spending several months in Europe visiting the principal medical centers.

Professor Leon Asher, of the University of Berne, delivered a lecture on "The Harmonic Activity of the Liver" at the auditorium of St. Louis University, October 17.

The next meeting of the State Board of Health for the examination of applicants for license to practice medicine in Missouri will be held at Kansas City, November 12, 13, 14, 1929.

The Fifty-Third Annual Meeting of the Southeast Missouri Medical Association was held at the Marquette Hotel, Cape Girardeau, October 1 and 2, 1929, President Dr. Carl A. W. Zimmermann, Cape Girardeau, presiding. About fifty were in attendance.

Dr. E. V. Cowdry, St. Louis, professor of cytology at Washington University School of Medicine, delivered a lecture on "Recent Advances in Our Knowledge of Yellow Fever" at the University of Missouri, October 8, under the joint auspices of Sigma Xi and the School of Medicine.

Drs. W. M. Steele and John A. Hartwig, St. Louis, have been appointed on the staff of the Catholic School Health Bureau at St. Louis. This Bureau provides health service for the parochial schools of St. Louis City and St. Louis County. The headquarters are located at the St. Louis University School of Medicine.

The American College of Physicians will hold its fourteenth annual clinical session at Minneapolis, February 10-14, 1930. The meetings will be held in the Minneapolis Municipal Auditorium. The Executive Secretary is Mr. E. R. Loveland, 133-135 South 36th St., Philadelphia, and Dr. S. Marx White, Minneapolis, is general chairman of the local committees at Minneapolis.

The physicians from Butler, Dunklin, Pemiscot, Scott and Stoddard counties held a meeting at Poplar Bluff, October 10. This is a quarterly gathering and this session was presided over by Dr. J. Lee Harwell, Poplar Bluff, who also acted as toastmaster. Mayor B. K. Flanery gave the address of welcome to which Dr. J. D. Van Cleve, Malden, responded. Public health work, particularly as carried on through the public health unit system, was discussed. Dr. W. S. Petty, Jefferson City, explained the health system and Dr. Wheeler Davis, Kennett, health physician for Dunklin County, explained the policy of the health unit.

Orders have been issued to vacate the present Veterans' Bureau at Excelsior Springs by November 15 when construction on a new addition to cost \$900,000 will begin. It is probable that the present building will be closed for almost a year. When the new building is completed the hospital will have a capacity of three hundred beds instead of one hundred and twenty-five as at present. Almost one hundred veterans now undergoing treatment at Excelsior Springs will be transferred to other hospitals in Kansas City, St. Louis and Muskogee.

Announcement has been made that the Maltbie Chemical Company of Newark, N. J., has contributed a grant for a research fellowship for the coming year to the Philadelphia College of Pharmacy and Science. The research work to be done under this fellowship will be fundamental in character and will cover a study of the toxicity, pharmacology and bactericidal efficiency of creosote, creosote compounds, and constituents of creosote. The work to be done under this fellowship follows the chemical researches on creosote of the past year under the Maltbie Chemical Company Fellowship at Princeton University. The establishment of this research fellowship continues the policy of the Maltbie Chemical Company to contribute to the study of the chemistry and pharmacology of important drugs.

The following articles have been accepted for New and Nonofficial Remedies:

Abbott Laboratories
Metaphen 2500
Hollister-Stier Laboratories
Bacillus Acidophilus Culture — Hollister-Stier
Acne Vaccine
Pertussis Bacillus Vaccine
Typhoid-Paratyphoid Prophylactic
Staphylococcic Vaccine
Mead Johnson & Co.
Sobee
Sandoz Chemical Works, Inc.
Calcium Gluconate—Sandoz
E. R. Squibb & Sons
Diphtheria Toxoid—Squibb, 30 cc. vial

OBITUARY

AUGUSTA HELLE, M.D.

Dr. Augusta Helle, St. Louis, a graduate of the Medical Department of the National University of Arts and Sciences, 1913, died October 7, 1929, at Barnes Hospital, St. Louis, after an illness of several months, aged 53.

Dr. Helle practiced in St. Louis ever since her graduation from medical school in 1913. She was born in St. Louis in 1875 and was educated in the public schools of that city. She also took postgraduate courses in universities abroad during five trips made since entering practice. Her offices were located at her home, 3525 Arsenal Street. She became a

member of the St. Louis Medical Society in 1914.

Dr. Helle is survived by her mother, Mrs. Anna B. Helle, and three brothers.

FRANK CALVIN WALLIS, M.D.

Dr. Frank C. Wallis, Maryville, a graduate of Rush Medical College, 1902, was found dead in bed, August 23, 1929, of heart disease, aged 52.

Dr. Wallis was a member of the staff of St. Francis Hospital, Maryville. He received his preliminary education at Drake University. He has been a member of the Nodaway County Medical Society since 1913, and served as president in 1924. He was a Fellow of the A. M. A.

JOHN BUNYAN GRAVES, M.D.

Dr. John B. Graves, Farmington, a graduate of the Washington University School of Medicine, 1897, died at his home Sunday morning, September 22, 1929, aged 53. He had been confined to his bed for many weeks. In September, 1928, he suffered from blood poisoning as a result of an injury to his right hand and was never able to resume his practice.

Dr. Graves was born at Bonne Terre, June 25, 1876, and obtained his preliminary education at Carleton College, Farmington. He began practicing in Doe Run in 1897, later moved to Sikeston, and then to Farmington in 1912. For a number of years he was a member of the board of education in Farmington. He was a teacher of music and director of the choir in the Murphy-Long Memorial Church, of which he was an honored member. In June, 1907, he was given an honorary degree of music by Carleton College. In 1920 he was president of the St. Francois County Medical Society. He was a member of the Masonic Lodge, the Maccabees, Modern Woodmen and Royal Neighbors of America. He is survived by his widow, three children and two sisters.

WILLIAM LUTHER MARTIN, M.D.

Dr. William L. Martin, Chilhowee, a graduate of St. Louis University School of Medicine, 1902, died at his home, Tuesday morning, October 1, 1929, aged 53. He had not been well since returning from a convention of Rock Island surgeons in Denver in September, but his death came as a shock to his friends as none of them realized that his condition was serious.

Soon after obtaining his medical degree Dr.

Martin located at Chilhowee where he practiced until his death. He was the son of the Reverend J. J. Martin, pioneer Methodist minister, who died four years ago in Jefferson City. He was born January 15, 1876, near Marionville, Missouri, and obtained his pre-medical education at Carleton College in Farmington and Marionville College. His father had served as president of both these institutions. At one time his father was chaplain of the Missouri penitentiary, having been appointed by Governor Herbert S. Hadley.

Dr. Martin and Miss Lulu Johnson were married in 1905. Two daughters were born to them, Mrs. Jessie P. Dickerson and Helen Mildred. Mrs. Martin died May 26, 1920. Two years later he married Miss Annie E. Turner and two children were born to this union, W. L. Jr., and Mary Ann. He is survived by his wife, the four children, his mother, Mrs. J. J. Martin, of Jefferson City, and seven sisters. He was a member of the Methodist church, the Masonic Order, of which he was a past master, the Eastern Star and the Modern Woodmen. He served as physician for the Rock Island Railroad for many years. He was a member of the Johnson County Medical Society. He had always been active in public matters, having served as mayor of Chilhowee and as a member of the board of education and the city board of public works.

MISCELLANY

AN APPRECIATION OF DR. JOHN A. WITHERSPOON

The Council on Medical Education and Hospitals of the American Medical Association has approved the following memorial to Dr. John A. Witherspoon and incorporated it in the minutes of the Council:

The Council on Medical Education and Hospitals of the American Medical Association was particularly grieved over the death of Dr. John A. Witherspoon on April 28, 1929, because he was one of the five experienced and well known medical teachers who, in 1904, were appointed as members of the first Council on Medical Education, and the first of that group to pass into the Great Beyond. It was this first Council that organized and put into operation the campaign for improvement which was destined to bring about an extensive reorganization of medical education in the United States, including great advances far exceeding the Council's highest expectations. Of the Council's first members no better representative of the Southern states could have been selected than Dr. John A. Witherspoon, especially during the critical period when the Southern states were laboring under greater handicaps, financially and educationally, than any other part of the country. Nevertheless, under his calm and sympathetic but aggressive leadership, the campaign for improvement in medical education in that part of our great commonwealth was carried on with an enthusiasm that soon brought that section into the lead from the standpoint of its achievements. The South, indeed, was the first section of the country to rid itself of the low-grade, mercenary type of medical teaching institution,—an accomplishment that was due largely to the wisdom, foresight and rare common sense of Dr. John A. Witherspoon, the South's first representative on the Council on Medical Education. Dr. Witherspoon was also the Council's first member to be elected (in 1913) to the presidency of the American Medical Association.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.
Ralls County Medical Society, December 17, 1928.
Chariton County Medical Society, December 28, 1928.
Mercer County Medical Society, January 2, 1929.
Camden County Medical Society, January 11, 1929.
Benton County Medical Society, February 13, 1929.
Dent County Medical Society, April 3, 1929.
Marion County Medical Society, April 8, 1929.
Platte County Medical Society, April 11, 1929.
Atchison County Medical Society, April 22, 1929.
Christian County Medical Society, April 24, 1929.
St. Francois-Iron County Medical Society, April 24, 1929.
Schuyler County Medical Society, May 3, 1929.
Shelby County Medical Society, May 6, 1929.
Callaway County Medical Society, May 10, 1929.
Lafayette County Medical Society, May 15, 1929.
Scotland County Medical Society, May 22, 1929.
Henry County Medical Society, June 20, 1929.
Grundy County Medical Society, July 15, 1929.
Macon County Medical Society, July 15, 1929.
Wright-Douglas County Medical Society, August 6, 1929.
Caldwell County Medical Society, September 9, 1929.

NINTH COUNCILOR DISTRICT

The Boone County Medical Society held its annual inter-county meeting in conjunction with the Ninth Councilor District meeting of the Missouri State Medical Association, Tuesday, October 1, 1929, at the Country Club, Columbia. The session closed with a dinner at the Columbia Country Club at 6:30 p. m.

In the afternoon the following scientific program was given:

"New Developments in Obstetrics," Dr. Wenzel C. Gayler, St. Louis.

"The Diagnosis and Treatment of Hyperthyroidism; Case Clinic and Lantern Slide Demonstration," Dr. John H. Ogilvie, Kansas City.

"The Diagnosis and Treatment of Head Injuries,"

Dr. Winchell McK. Craig, of the Surgical Section on Neurology, Mayo Clinic, Rochester.

After-dinner talks were made by the following: Dr. W. C. Gayler, St. Louis, President-Elect of the Missouri State Medical Association, discussed the problems of medical education, comparing the several hundred medical schools of thirty years ago with the seventy-five recognized schools of today and emphasizing the need of some changes to meet the present day situation.

Dr. E. J. Goodwin, St. Louis, Secretary-Editor of the State Association, spoke of the importance of a medical organization to the individual physician and to the profession as a whole.

Dr. D. A. Barnhart, Huntsville, Councilor of the Tenth District, described the work of the Council of the State Association and spoke of some of the problems facing it.

Dr. W. L. Allee, Eldon, Councilor of the Eighteenth District, briefly outlined some of the efforts of the Committee on Public Policy at procuring legislative action for a state general hospital and a four year course at the medical school of the University of Missouri.

Dr. A. R. McComas, Sturgeon, Chairman of the Council and Councilor of the Ninth District, reviewed the activities of the Council and made a plea for individual efforts which would lead to more extensive service to the crippled children of the state, to a state general hospital, and to a four year course at the medical school of the University of Missouri.

Letters of regret were read from Dr. T. W. Cotton, Van Buren, President of the State Association, and Dr. James Stewart, Jefferson City, Secretary of the State Board of Health, both of whom were unable to attend.

The next meeting of the Boone County Medical Society will be held November 5.

Those who registered for attendance at the meeting were: Edgar Allen, Columbia; M. R. Aldridge, Jefferson City; W. L. Allee, Eldon; D. C. Adams, Fulton; R. Lee Alford, Vandalia; W. W. Bland, Vandalia; W. E. Belden, Columbia; R. S. Battersby, Columbia; D. A. Barnhart, Huntsville; E. D. Baskett, Columbia; H. C. Brashear, Mexico; G. A. Bradford, Columbia; W. McK. Craig, Rochester, Minn.; G. W. Coonce, Columbia; P. E. Coil, Mexico; D. S. Conley, Columbia; G. L. Chamberlain, New Franklin; R. N. Crews, Fulton; F. E. Dexheimer, Columbia; W. P. Dysart, Columbia; C. H. Dixon, Moberly; T. R. Frazer, Fulton; Ralph M. Fellows, Salisbury; J. B. Fleet, New Franklin; W. O. Fischer, Columbia; Wm. W. Fellows, Salisbury; E. A. Fluesmeier, Wright City; R. T. Gibbs, Mexico; E. J. Goodwin, St. Louis; W. C. Gayler, St. Louis; C. W. Greene, Columbia; J. Frank Harrison, Mexico; H. R. Hill, Auxvasse; Ross Hopkins, Jefferson City; J. Y. Hume, Auxvasse; J. Frank Jolly, Mexico; Andrew B. Jones, St. Louis; A. W. Kampschmidt, Columbia; R. M. Klemme, St. Louis; C. L. Lavender, Columbia; C. B. Lawrence, Hallsville; Buell Meneff, Montgomery City; M. S. McGuire, Boonville; E. T. McGaugh, Fulton; Edwin Mansur, Jefferson City; M. P. Moon, Columbia; A. R. McComas, Sturgeon; G. D. McCall, Fulton; Hugh P. Muir, Columbia; W. K. McCall, Laddonia; J. G. Moore, Mexico; M. Pinson Neal, Columbia; John R. Nelson, Columbia; F. G. Nifong, Columbia; Guy L. Noyes, Columbia; W. A. Norris, Columbia; David Nowlin, Montgomery City; Moss R. Noland, Moberly; John H. Ogilvie, Kansas City; H. B. Pryor, Ashland; C. C. Farmer, Centralia; D. A. Robnett, Columbia; S. T. Ragan, Moberly; T. C. Richards, Fayette; Finis C. Suggett, Columbia; Dan G. Stine, Columbia; C. M. Sneed, Columbia; Robert H. Simpson, Columbia; W. R. Shafer, Columbia; Arthur J. Smith, Boonville; Stephen D. Smith, Columbia; J. S. Summers, Jefferson City; Dr. Wells, Kansas City; W. H. Williamson, Mokane; Martin Yates, Fulton.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met at St. Joseph, Wednesday evening, September 18, 1929.

Dr. Daniel Morton, St. Joseph, spoke on "Malta Fever," a confusing element in diagnosis. The history of Malta (or undulant) fever was reviewed from the time of Bruce's work down to the present,

and the morphological, cultural and biochemical characteristics of the organism producing the disease were discussed. The relationship of the *Bacillus abortus* to the coccobacillus of Bruce was dwelt on and its new importance as a factor in undulant fever. Dr. Morton stressed the importance of the agglutination test in the positive diagnosis of this disease. In conclusion he stated that pasteurization of milk, inspection of dairy herds, and making this a reportable disease are absolutely essential in controlling the spread of undulant fever.

Discussion by Drs. C. O. Dewey, W. D. Webb, P. R. McGill, and Dr. Fuson.

Meeting of October 2, 1929

The Society met Wednesday evening, October 2, 1929.

Mr. W. D. Barker, Superintendent of Noyes Baptist Hospital, St. Joseph, gave a short talk and thanked the physicians of St. Joseph for the cooperative spirit shown the new Noyes Baptist Hospital.

Dr. W. T. Elam, St. Joseph, moved that the Society extend a vote of confidence in and endorsement of the Noyes Baptist Hospital. The motion was seconded and carried.

The application of Dr. S. E. Senior, St. Joseph, having been approved by the board of censors was read for the second time. On ballot Dr. Senior was unanimously elected to membership.

The application of Dr. G. A. Koon, St. Joseph, by transfer from the Linn County Medical Society, was read for the first time and referred to the board of censors.

Dr. C. S. Branson, St. Joseph, brought up the question of the present fee bill and suggested some important changes. It was moved, seconded and carried, that Dr. Branson draft the proposed changes, these changes to be published in the Bulletin ten days before being balloted upon.

Dr. Caryl Potter, St. Joseph, proposed an amendment to the By-Laws as follows: "Any member convicted of a felony before a Federal or criminal court shall be automatically dropped from membership."

T. L. HOWDEN, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The first fall meeting of the Greene County Medical Society was held Friday evening, September 13, 1929, at the Springfield Public Library. The following members were in attendance: Drs. E. Loyd Cartwright, W. C. Cheek, Lee Cox, W. A. Delzell, W. T. Edmondson, J. F. Ferguson, E. M. Fessenden, S. F. Freeman, Robert Glynn, W. E. Handley, Otto C. Horst, J. D. James, A. D. Knabb, J. W. Love, Wallis Smith, M. C. Stone, J. N. Wakeman, and J. W. Williams, Jr. Dr. A. J. Watman was a visitor.

Dr. T. A. Coffelt, Powersite, was unanimously elected an Honor Member of the Society. Dr. Coffelt formerly practiced at Springfield.

The scientific program of the evening consisted of a paper by Dr. Joseph D. James, Springfield, on "The Surgery of Pregnancy."

Dr. E. Loyd Cartwright, Springfield, led the discussion on Dr. James' subject.

Dr. James also presented an unusual report, with photographs, of a case of Siamese twins.

Meeting of September 27, 1929

The Society met September 27 in the public library with the following members present: Drs. W. R. Beatie, Guy D. Callaway, J. W. Coon, T. V. Crane, W. E. Handley, F. T. H'Doubler, O. C. Horst, J. W.

Love and J. Newton Wakeman, of Springfield. Dr. W. R. Beatie presided in the absence of the president, Dr. Arthur D. Knabb, Springfield.

On account of illness, Dr. J. LeRoy Atherton, Springfield, was unable to read his paper. However, we were fortunate in securing Dr. Jay Silsby, St. Louis, who spoke on "Gas Anesthesia." Dr. W. E. Handley led the discussion on Dr. Silsby's paper.

An interesting case report of a special type of aphasia was given by Dr. Joseph W. Love, Springfield. The location of the lesion was very plainly shown by drawings.

The program was immensely enjoyed by all.

Meeting of October 11, 1929

The Society met October 11 in the public library with fifteen members in attendance, Dr. Arthur D. Knabb, Springfield, president, in the chair. The minutes of the previous meeting were read and approved.

The secretary read a letter from the superintendent of the University Hospital, Columbia, regarding the free state service for indigent crippled children.

The scientific program consisted of a paper by Dr. Francis B. Camp, Springfield, on "Functional Disturbance of the Digestive Tract." The paper was discussed fully by Drs. U. J. Busiek, Guy D. Callaway and J. W. Coon.

J. NEWTON WAKEMAN, M.D., Secretary.

LACLEDE COUNTY MEDICAL SOCIETY

The Laclede County Medical Society met at Waynesville, Tuesday, September 10, 1929, with the physicians of Pulaski and Phelps counties as guests. For this gathering we had planned to present to the doctors of this section of the Ozarks some fine young men who are natives of this section and to show that the "Hills" can produce something more than wheat, corn, cows, cabbage, carrots, etc., namely, men who have made and who are making names for themselves in the medical world thereby honoring Laclede County of the Ozarks.

Five young men formerly of Laclede County who with the exception of one attended high school at Lebanon had been invited but only two were able to be present, namely, Dr. Clarence H. Benage, Pittsburg, Kansas, and Dr. Duff S. Allen, St. Louis. Dr. Allen is assistant professor of clinical surgery at Washington University School of Medicine. Drs. Roger G. Atchley, Tulsa, Oklahoma; William Chester Vernon, Okmulgee, Oklahoma, and U. Eugene Hartley, St. Louis, assistant in urology, St. Louis University School of Medicine, complete the number of whom we are justly proud but these three were unable to be present.

After a six o'clock dinner at the famous Baker Hotel, the members adjourned to the circuit court room where for two hours they listened to, discussed and enjoyed two worth while papers presented by Drs. Clarence H. Benage and Duff S. Allen.

Dr. Benage gave an interesting talk on "The Early Diagnosis of Gastric Carcinoma."

"Acute Conditions of the Abdomen" was the subject of Dr. Allen's paper.

These papers were intensely interesting and enlightening and worthy of a larger hearing.

This meeting so enthused those present that it was decided to hold a similar gathering in November, inviting some other physicians of this district. We would be pleased to have any of the state officers or others with us at our November meeting.

J. A. McCOMB, M.D., Secretary.

ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met at Bismarck, September 24, 1929, at 7 p. m. A dinner of spiced baked ham with pineapple, candied yams, corn, tomato pimento salad with lettuce, hot rolls, coffee, brick ice cream and cake was served to about twenty persons. Dr. Emmett F. Hocht, president of the Society, and superintendent of State Hospital No. 4, Farmington, presided and Dr. J. L. Eaton, Bismarck, acted as toastmaster. Drs. J. D. Hayward and F. L. Morse, St. Louis, were guests and provided the scientific program.

Dr. Hayward addressed the meeting on "The Application of Anatomy with Other Methods of Diagnosis."

Dr. Morse read an interesting paper on "Osteomyelitis and Other Bone Conditions."

The speakers had their subject matter well in hand and made excellent talks.

RALF HANKS, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The regular meeting of the St. Louis County Medical Society was held at the club-house of Dr. A. W. Westrup, Webster Groves, Wednesday afternoon, September 11, 1929, at three p. m. The meeting was called to order by President Westrup with the following members present: Drs. H. N. Corley, C. C. Irick, F. C. E. Kuhlmann and A. W. Westrup, Webster Groves; Dr. R. B. Denny, Creve Coeur; Drs. C. P. Dyer, Otto W. Koch, L. C. Obrock, F. J. Peterson, Joseph McNearney and J. A. Sterling, St. Louis; Drs. E. O. Breckenridge and E. E. Tremain, Maplewood; Drs. D. Henry Hanson and R. H. Trumpour, Kirkwood; Dr. F. P. Knabb, Valley Park; Dr. J. A. Townsend, Eureka; Dr. Harry Greensfelder, University City.

Dr. F. J. Peterson, St. Louis, was elected to membership by transfer from the St. Louis Medical Society.

A report on the St. Louis County Hospital was read by the president, Dr. A. W. Westrup. This report was followed by a discussion.

Dr. E. O. Breckenridge, Maplewood, moved that the Society recommend to the St. Louis County Court that a tuberculosis unit of the hospital be built in preference to the isolation unit. Seconded by Dr. R. B. Denny, Creve Coeur, and carried.

The meeting adjourned, and the members and their families were entertained with a dinner of barbecued ribs by Drs. Otto W. Koch and A. W. Westrup.

A rising vote of thanks was given the hosts.

E. E. TREMAIN, M.D., Secretary.

WOMAN'S AUXILIARY

OFFICERS 1929-30

President, Mrs. M. P. Ravenel, Columbia.

President-Elect, Mrs. A. W. McAlester, Kansas City.

1st Vice President, Mrs. U. J. Busiek, Springfield.

2nd Vice President, Mrs. James F. Owens, St. Joseph.

3rd Vice President, Mrs. H. C. Brashear, Mexico.

4th Vice President, Mrs. L. G. McCutchen, St. Louis.

Corresponding Secretary, Mrs. C. M. Sneed, Columbia.

Recording Secretary, Mrs. David S. Long, Harrisonville.

Treasurer, Mrs. R. C. Haynes, Marshall.

Auditor, Mrs. C. T. Ryland, Lexington.

Directors (2 years): Mrs. W. W. Ford, Gordonville; Mrs. Harry F. Parker, Warrensburg; Mrs. F. H. Spencer, St. Joseph; Mrs. C. C. Cummings, Joplin; Mrs. Raymond Spivy, St. Louis. (1 year): Mrs. T. S. Fleming, Moberly; Mrs. S. F. Freeman, Springfield; Mrs. Robert McE. Schauffler, Kansas City; Mrs. Hudson Talbott, St. Louis; Mrs. J. J. Gaines, Excelsior Springs.

NOTES

Following the plan adopted at the 1929 session of the Woman's Auxiliary to award an annual scholarship of \$500 to some worthy medical student of the University of Missouri, the Auxiliary has announced that it made its first award to Mr. Edwin Schmidtke, St. Louis. Mr. Schmidtke has acknowledged receipt of the donation in the following communication:

St. Louis, Mo., September 20, 1929.

Mrs. R. C. Haynes,

Marshall, Mo.

Dear Mrs. Haynes:

Received the check for one hundred and fifty dollars this a. m. I assure you that it will be of assistance to me in beginning my school. You and the other members of the Woman's Auxiliary to the Missouri State Medical Association can never know how grateful I am for this assistance.

Thanking you for your assistance, I remain

Very truly yours,

(Signed) EDWIN SCHMIDTKE.

CORRESPONDENCE

REVISION OF UNITED STATES PHARMACOPOEIA

Philadelphia, Pa., September 27, 1929.

To the Editor:

The extent of present day use of deleted pharmacopoeial drugs is one of those decennial questions which always causes some discussion when the time for a new pharmacopoeia approaches. A number of efforts have been made in the past to secure exact facts upon which to base correct judgments for the U. S. P. scope and again an appeal is made for help in making such a study.

A questionnaire has been suggested by physicians of the committee as a check upon the decisions of the past twenty years and it will be a genuine service to the pharmacopoeia at this time if you will refer to this questionnaire in your next issue, dealing with it briefly in your editorial columns, if possible. Copies will be sent by the chairman of the committee of revision to any one who is interested. Write E. Fullerton Cook, 636 South Franklin Square, Philadelphia, Pa.

At the same time reference should again be made to the Eleventh Decennial Pharmacopoeial Convention called for Washington, D. C., May 13, 1930. All delegates must register at least sixty days before the convention, the last date being March 4, 1930. If credential blanks have not yet been secured, write Dr. Lyman F. Kebler, 1322 Park Road, N. Y., Washington, D. C.

E. FULLERTON COOK,

Chairman, Committee of Revision,
United States Pharmacopoeia, Tenth.

EDITOR OF MEDICAL INTERPRETER RESIGNS

Washington, D. C., Sept. 27, 1929.

To the Editor:

I wish to inform the subscribers of the *Medical Interpreter* that I resigned as editor of that publication in December, 1928, and that I am no longer responsible in any manner for the actions of its promoters.

ALBERT ALLEMANN, M.D.,

Washington, D. C.

TRUTH ABOUT MEDICINES

NEW AND NONOFFICIAL REMEDIES

TABLETS THEOCIN, 2½ grains.—Each tablet contains 2½ grains of theocin soluble, formerly called theocin sodium acetate (New and Nonofficial Remedies, 1928, p. 424). Winthrop Chemical Co., Inc., New York.

PERFRINGENS ANTITOXIN.—B. Welchii Antitoxin.—Anti-Gas Gangrene Serum.—An anaerobic antitoxin (New and Nonofficial Remedies, 1928, p. 351) prepared by immunizing horses with gradually increasing doses of the toxin of *B. welchii*. The finished product is tested on pigeons by determining the minimum amount necessary to neutralize the M. L. D. of *B. welchii* toxin, the potency being expressed in units. The product is marketed in 100 cc. bottles of unconcentrated serum containing at least one unit per cc.; in 50 cc. bottles of unconcentrated serum containing at least two units per cc.; and in 20 cc. syringes of concentrated serum containing at least five units per cc. H. K. Mulford Co., Philadelphia.

TETANUS.—Perfringens Antitoxin Refined and Concentrated.—P. D. & Co.—An anaerobic antitoxin (New and Nonofficial Remedies, 1928, p. 351) prepared from the toxins of *B. welchii* and *B. tetani* by immunizing horses with repeated, gradually increasing doses of tetanus toxin and perfringens (*B. welchii*) toxins until samples from treated animals show one unit or more of tetanus antitoxin per cc. and one unit or more of perfringens antitoxin per cc. In addition to use in the treatment of gas gangrene, this product is proposed for use as a prophylactic in conditions such as wound or contusions in the abdominal tract and as curative in cases of acute peritonitis and obstruction of the small bowel. It is marketed in packages of one syringe containing 1500 units of tetanus antitoxin and 10 units of perfringens antitoxins. Parke, Davis & Co., Detroit. (Jour. A. M. A., May 4, 1929, p. 1521.)

MORE DENTO-MEDICAL QUACKERY.—The latest reports of the chemist of the American Dental Association to the dental profession deal with X-It, a pyorrhea remedy, and "Ora-Noid," said to be a "synthetic saliva" preparation. X-It (X-It Laboratories, New York City) is advertised both to dentists and the public. No information is given in regard to the composition of the product, so that the dentist who used it assumes the responsibility in applying a preparation about which he must know little. The analysis brought out that X-It is, essentially, compound tincture of benzoin, with a small amount of zinc chloride, flavored with oil of wintergreen. Ora-Noid, according to the Ora-Noid Co. of Chicago may be "roughly defined as a Synthetic Saliva." The chief men behind the Ora-Noid Co. seem to be an attorney and a man connected with a furniture forwarding company. It is claimed that Dr. Otto A. Keller of Chicago developed the Ora-Noid method and discovered "the ideal proportions in which to mix the various vegetables and mineral salts so as to build up the saliva to its highest potency." Just who Dr. Otto A. Keller is, is not clear. The American Dental Association chemist found that Ora-Noid was strongly alkaline, in marked contrast to normal saliva, which is usually faintly acid, and that, while saliva digests starch, Ora-Noid, under identical conditions, did not do so. The chemist also found that Ora-Noid was essentially a mixture of table salt, baking soda, chalk, magnesia, starch and borax. (Jour. A. M. A., March 9, 1929, p. 828.)

CRYSTALLINE PEPSIN.—Within a comparatively few months successive announcements of the isolation of crystalline insulin, crystalline tuberculin, crystalline urease and crystalline pepsin have followed one another. This crystalline pepsin possesses all the enzymatic properties: it hydrolyzes gelatin, casein, egg albumin and edestin in acid solution and is rapidly inactivated by alkali or heat. It crystallizes in small prisms. The highest peptic activity thus far secured is about 1:20,000 U. S. P. (Jour. A. M. A., July 27, 1929, p. 285.)

POISONING FROM METHYL CHLORIDE USED IN DOMESTIC REFRIGERATORS.—At the 1929 annual session of the American Medical Association the House of Delegates, recognizing the dangers of toxic gases used in industry and in the home, asked the Board of Trustees to appoint a committee to look into the situation and to advise the medical profession and the public for the good of the public health. In the meantime additional deaths from the use of methyl chloride in mechanical refrigeration have occurred in Chicago as determined by a special coroner's jury, which has recommended the discontinuance of the use of methyl chloride as rapidly as possible, the temporary use of warning gases with methyl chloride until substitution of some less hazardous gas shall be made, and a definite warning by manufacturers to users of such apparatus as to the hazards involved. (Jour. A. M. A., July 27, 1929, p. 288.)

THE QUESTIONNAIRE NUISANCE.—One of the many by-products of the modern art of advertising is the advertising agency, whose business it is to prepare advertising campaigns for those who wish to cry their wares in the market places. Out of the business of preparing advertising campaigns has grown one of the most intolerable nuisances that ever plagued the medical profession—the questionnaire. The fault rests primarily on those members of the profession who, with easy-going tolerance, give for the asking, expert opinions that are based on much work and special study. Some of these questionnaires come frankly from advertising agencies; others, although also emanating from advertising agencies, are camouflaged with names such as "research" or "bureau." The following are some of the questionnaires with which the medical profession has been plagued during recent years: Lord and Thomas, advertising agents of Los Angeles, sent letters to dermatologists in the interest of the California Fruit Growers Association on the effects of lemon juice when used as a hair rinse. Lord and Thomas and Logan, New York, circularized physicians in the interest of the manufacturers of "Lucky Strike Cigarettes." Williams and Cunyngham, an advertising agency, went to the profession seeking advertising data on asthma and hay fever. Physicians received a questionnaire from "The Editors" of the *Medical Review of Reviews*, addressed to dermatologists regarding a survey of methods of washing the hands to insure freedom from skin diseases, preservation of line and contour, etc. The National Research Bureau of Cincinnati (a fancy name used by Procter and Collier Co., an advertising agency) also sent out a questionnaire to dermatologists. A questionnaire was sent out by the "Medical Research Bureau" of New York, dealing with the use and prescribing of sedatives, the data to be used by John B. Daniels, Inc., Atlanta, Ga., makers of Pasadyne. A questionnaire was sent out by the "Medical Research Bureau" of Chicago in regard to a profit-sharing method of supplying drugs in quantities direct from the whole-

saler. Physicians should consign to the wastebasket every questionnaire that asks for free advice and comes from commercial or unknown sources. (Jour. A. M. A., March 23, 1929, p. 1004.)

MEDICAL PRESCRIPTIONS OF ALCOHOL.—During 1928, 68,951 physicians used prescription books as contrasted with 48,097 in 1927. The number of licensed physicians in those states which permit the use of liquor for medicinal purposes is 116,756, so that a little more than one-half the total number of physicians permitted to prescribe alcoholic liquors avail themselves of the opportunity. Slightly more than 10 per cent of all the physicians who might prescribe alcoholic liquors used the total number of prescriptions afforded them by the government. The total number of prescriptions issued during the year increased from more than eight million in 1922 to approximately thirteen and a half million in 1925 and then decreased to less than twelve million in 1927. At the close of the year the number of outstanding permits of this kind had increased to 101,052. (Jour. A. M. A., March 30, 1929, p. 1130.)

INSULIN.—Squibb, 80 units, 10 cc.—Each cc. contains insulin—Squibb (New and Nonofficial Remedies, 1929, p. 197) 80 units. E. R. Squibb & Sons, New York.

DIPHTHERIA TOXOID.—A diphtheria toxoid (New and Nonofficial Remedies, 1929, p. 368) prepared from diphtheria toxin of which the L+ dose is 0.25 cc. The toxin is treated with formaldehyde according to the specifications of the U. S. Public Health Service until it is detoxified. It is tested for antigenic power by subcutaneous injection into guinea-pigs. Diphtheria toxoid—P. D. & Co. is marketed in packages containing one bulb (0.5 cc.) of dilute diphtheria toxoid for the reaction test and two bulbs (0.5 and 1.0 cc. respectively) of diphtheria toxoid; also marketed in hospital packages. Parke, Davis & Co., Detroit.

PETROLAGAR (with Milk of Magnesia).—Liquid petrolatum (New and Nonofficial Remedies, 1929, p. 228) 65 cc.; magnesia magma, 8 cc.; emulsified with agar in a menstruum containing sugar, flavoring, sodium benzoate 0.1 Gm., and water to make 100 cc. Petrolagar Laboratories, Inc., Chicago. (Jour. A. M. A., June 1, 1929, p. 1837.)

BISMARSEN.—**SULPHARSPHENAMINE BISMUTH.**—**BISMUTH ARSPHENAMINE SULPHONATE.**—The sodium salt of a bismuth derivative of arspenamine methylene sulphonic acid with inorganic salts. It contains approximately 13 per cent of arsenic and 24 per cent of bismuth. Bismarsen is used in the treatment of syphilis. The drug is reported to be somewhat slower in its action than intramuscularly administered sulpharsphenamine or intravenously administered neoarsphenamine, but much more rapid than bismuth. More or less severe pains at the site of injection have been reported. Bismarsen is administered intramuscularly. Abbott Laboratories, North Chicago, Ill. (Jour. A. M. A., June 8, 1929, p. 1928.)

DIGIFOLINE-CIBA.—A digitalis preparation containing the active glucosides of digitalis, free from extractive matter. It is standardized to have the strength of digitalis leaves as standardized by the frog method of Focke. The actions and uses of Digifoline-Ciba are the same as that of digitalis. It may be administered orally, rectally, or by subcutaneous, intramuscular or intravenous injection. Digifoline-Ciba is marketed in the form of Ampoules Digifoline-Ciba Solution, Digifoline-Ciba

Liquid and Tablets Digifoline-Ciba. Ciba Company, Inc., New York.

CONCENTRATED POLLEN EXTRACTS.—Swan-Myers.—In addition to the products listed in New and Nonofficial Remedies, 1929, p. 26, the following product has been accepted: Canada Blue Glass Concentrated Pollen Extract—Swan-Myers. Swan-Myers Co., Indianapolis.

SULPHARSPHENAMINE.—Searle, 0.1 Gm. Ampules.—Each ampule contains sulpharsphenamine—Searle (THE JOURNAL, April 20, 1929, p. 1349) 0.1 Gm. G. D. Searle & Co., Chicago.

SULPHARSPHENAMINE.—Searle, 0.2 Gm. Ampules.—Each ampule contains sulpharsphenamine—Searle (THE JOURNAL, April 20, 1929, p. 1349) 0.2 Gm. G. D. Searle & Co., Chicago.

SULPHARSPHENAMINE.—Searle, 0.3 Gm. Ampules.—Each ampule contains sulpharsphenamine—Searle (THE JOURNAL, April 20, 1929, p. 1349) 0.3 Gm. G. D. Searle & Co., Chicago (Jour. A. M. A., June 15, 1929, p. 2021).

AMPULES LUMINAL-SODIUM (Powder), 2 grains.—Each ampule contains 2 grains of luminal-sodium (New and Nonofficial Remedies, 1929, p. 81). (Jour. A. M. A., June 22, 1929, p. 2101.)

ISAROL.—Ciba.—Sulphonated Bitumen, N. F.—A preparation obtained by dry distillation of bituminous shale. The distillate is sulphonated with sulphuric acid and subsequently neutralized with ammonium carbonate. The product complies with the standards for sulphonated bitumen, N. F. It has the actions and uses of sulphoichthyolate preparations and substitutes (New and Nonofficial Remedies, 1929, p. 398). (Jour. A. M. A., July 6, 1929, p. 33.)

AMPOULES OF PITRESSIN.—An aqueous solution containing the pressor and diuretic-antidiuretic principle of the posterior lobe of the pituitary gland (betahypophamine) containing less than 1 unit of oxytocic activity per cc. It is standardized by the method of Hamilton and Rowe so that each cc. contains 20 pressor units (1 unit represents the pressor activity exhibited by 0.5 mg. of standard powdered pituitary U. S. P.). This product is used for temporary stimulation of blood pressure, for increasing the muscular activity of the bladder and intestinal tract, also for antidiuretic effect in diabetes insipidus. It is marketed in 1 cc. ampoules. Parke, Davis & Co., Detroit.

PROPAGANDA FOR REFORM

ERGOTOLE, Extract of Ergot Purified, Ergotin-Merck, Liquor Ergot-Mulford, and Secacornin Omitted from N. N. R.—All of the ergot preparations included in New and Nonofficial Remedies, 1928, are watery extracts and as such, according to the current view, cannot contain much of the active alkaloids which are the important constituents of ergot when viewed from a clinical standpoint. With one exception, none is assayed by the U. S. P. method or any other method that will show the content of active alkaloids. The methods by which they are assayed show only, or mainly, the content of putrefactive amines, which have not proved desirable in obstetric work. The reference of the Council on Pharmacy and Chemistry for ergot preparations reported assays of the accepted brands not claiming assay by the official method (except Liquor Ergot-Mulford) which showed the prepara-

tions to contain less than 10 per cent of their claimed strength. In other words, they were found practically devoid of specific alkaloids. The Council voted to omit Ergotole, Extract of Ergot Purified, Ergotin-Merck, Lignor Ergot-Mulford, and Secacornin from New and Nonofficial Remedies. (Jour. A. M. A., May 4, 1929, p. 1521.)

VIKING PALATABLE COD LIVER OIL. OMITTED FROM N. N. R.—Viking Palatable Cod Liver Oil, marketed by the Viking Health Products Co., is cod liver oil containing 0.2 per cent of benzaldehyde. It was accepted for inclusion in New and Nonofficial Remedies in 1927. In 1928 an advertisement for the product appeared in the Chicago Daily News which was objectionable in that it made unwarranted claims for the product. The rules of the Council on Pharmacy and Chemistry provide that the acceptance of an article that is advertised to the public with unwarranted claims shall be summarily rescinded. The Council voted to omit Viking Palatable Cod Liver Oil from New and Nonofficial Remedies because it is advertised to the public with claims that are objectionable and unwarranted. (Jour. A. M. A., May 4, 1929, p. 1521.)

ACCIDENTS WITH LOCAL ANESTHETICS.—The investigation of accidents following the use of local anesthetics instituted by the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association has had many practical results. The reports were published in 1920 and 1924; now, André Klotz, of the Strasbourg Hospital, has published the results of an extensive study of the literature on this subject. He agrees with the American committees that accidents are due mainly to overdosage, to injections of cocaine, to the use of solutions of too high concentration, to excessive doses of epinephrine, and a smaller number to peculiar conditions of the patient that are beyond evaluation by the physician. The investigations of the American committees and of Klotz have thrown much light on the causes of avoidable accidents with local anesthetics, but it is obvious that many surgeons continue to disregard the warnings that have been published. The report of Klotz emphasizes the importance that physicians should continue to cooperate with the Permanent Committee for the Study of Toxic Effects of Local Anesthetics of the Therapeutic Research Committee. (Jour. A. M. A., May 18, 1929, p. 1680.)

EFFECTS OF CONTINUOUS USE OF ALLONAL AND AMYTAL.—"Allonal," according to a report of the Council on Pharmacy and Chemistry (Jour. A. M. A., June 12, 1926, p. 1853), is a preparation containing a combination of allylisopropylbarbituric acid and amidopyrine mixed with free allylisopropylbarbituric acid and an excess of amidopyrine. "Amytal" is stated to be iso-amyl-ethyl barbituric acid. The effects from the continuous use of either of these drugs in doses of two tablets daily cannot be stated accurately in a few words because the barbituric acid derivatives give rise to an extraordinary variety of symptoms under different conditions. It is possible that no ill effects would follow from such daily doses in a healthy adult in whom sleeplessness resulted solely from unusual cerebral activity, if the use were not too prolonged. At the other extreme, such doses taken continuously over a long period by an invalid suffering from a serious condition in which various other drugs were taken might lead eventually to the typical symptoms of barbitol poisoning, with pneumonia and death. Neither Allonal nor Amytal stands accepted by the Council on Pharmacy and Chemistry. (Jour. A. M. A., May 25, 1929, p. 1783.)

Books for Leisure Moments

The book "Youthful Old Age," or How to Keep Young, recently written by Walter M. Gallichan (The Macmillan Company, New York City), is unusually interesting. "Life," as the author sets it forth, is a "sweet potion of labor and laughter and love." This book will be welcomed especially by those who chafe under the "fads" and "isms" that are advertised by health cranks. Keeping young is indeed an art and Mr. Gallichan, who lives in England and is hale and hearty at the age of sixty-seven, tells from his own experience how it is accomplished through common sense observance of the simple rules of hygiene. Faddists and fanatics are constantly concocting new health rules and attempting to make life a very complicated affair. The matter of eating, to some, has become a dietitian's exercise and the dining table is in danger of becoming a prescription counter.

It has been said that current health propaganda is making people oversensitive and morbid in matters pertaining to their health. It is a pleasure then to find in Mr. Gallichan's book an advocacy of the prime value of happiness, of contentment, and of reasonable self-indulgence. "Surely," he says, "it is better to live a few decades and enjoy life than to live many dreary years in the irksome observance of a number of arbitrary health rules. But why not enjoy life and live long too?"

Mr. Gallichan allows us some degree of freedom of choice in our diet and general living as we move along the course of life. He emphasizes the harmful effects of white flour foods. There is an entire chapter headed "The Disease That Ages." It deals with the chief causes of constipation—the condition that really increases the progress of age.

The closing chapters of the book deal with questions of sex and health. Perhaps the most useful chapter is called "Some Thoughts of a Sexagenarian." Nervous illness of all kinds, the writer contends, will increase until we have learned how to apply the new psychology in education in the nursery, the school and the university. The author holds that we are entitled to be just as happy as we can just as long as we can—a wonderful result of life would be obtained, if properly applied. L. C.

A story that is quite a divergence from the usual kind of modern novel is the one written by Louise Ayres Garnett entitled "The Joyous Pretender" (The Macmillan Company, New York City). Since it is the "unusual" that proves so attractive and interesting nowadays, we are sure the reader will enjoy this story.

In this book we find the story of life and love, sophisticated yet naive, as seen through the eyes of a boy and told in his own language. Life is faithfully portrayed by him, yet only partly understood, as is characteristic of youth. We find a charm in youth's naturalness in the handling of the problems of life. In this book we live the life with Young Luke, who is the joyous pretender, in his search for a home, love and "folks." The characters—Luke, the boy; Christopher, the woman, and Fergus, the man,—are portrayed with truth, conviction and realization. L. C.

BOOK REVIEWS

A TEXTBOOK OF PHARMACOLOGY AND THERAPEUTICS. By Hugh Alistair McGuigan, Ph.D., M.D., Professor of Pharmacology and Therapeutics, University of Illinois, College of Medicine. Illustrated. Philadelphia and London: W. B. Saunders Company. 1928. Cloth, \$6.00 net.

The reviewer is quite pleased with Dr. McGuigan's attempt to combine clinical with scientific study as related to drugs. The material is in readable form. The language is concise. The discussions are erudite enough for practical purposes.

The book is not one for research workers, nor for students who are specializing in pharmacology. But for the beginners in medicine, and for those who wish to review therapeutics, it seems to be an excellent treatise. G. H. H.

DISEASES OF THE THYROID GLAND. By Arthur E. Hertzler, M.D., Surgeon of the Halstead Hospital. With a Chapter on Hospital Management of Goiter Patients. By Victor E. Chesky, M.D., Associate Surgeon to Halstead Hospital. Second edition, entirely rewritten. St. Louis: The C. V. Mosby Company. 1929. Price \$7.50.

From his large experience with goiter, Dr. Hertzler has epitomized in a particularly interesting volume, the entire subject as he views it. For its second edition, the book has been entirely rewritten, reiterating the studies of the Halstead Hospital on pathology, and clarifying the chapter on operative technic.

The section on pathology is sane and endeavors to simplify the somewhat conflicting opinions regarding classification. The author again emphasizes his contention that the various so-called groups of goiter are in reality to be considered as stages of the disease, and supports his beliefs by many excellent microphotographs. The discussion of the interstitial goiters, as Hertzler terms them, their presence as an instance of endocrine imbalance, and their association with dysmenorrhea, is worthy of careful perusal. As in the previous edition the pages on treatment are informative but succinct, and the accurate drawings by Tom Jones are ever a delight.

The occasional use of facetious comments will bring forth many a chuckle, while well turned epigrams serve to render a study of this book a most profitable pleasure. P. S. L.

ORGANIC CHEMISTRY. For Students of Pharmacy and Medicine. By A. H. Clark, Ph.G., B.Sc., M.S., Professor of Chemistry, University of Illinois School of Pharmacy, Member of the General Committee of Revision of the Pharmacopoeia of the United States, etc. New York: D. Van Nostrand Company, Inc. 1929. Price \$3.50.

This text is designed for students of pharmacy and describes many medicinal products not ordinarily mentioned in elementary pharmaceutical texts. Parts I and II give a review of organic chemistry and discuss naturally occurring organic compounds with particular reference to those having medicinal properties. Part III takes up synthetics and other medicaments and is the best part of the book. This text should serve its purpose in spite of the omission of some of the latest developments in the field of organic chemistry. H. D. H.

A PRACTICAL MEDICAL DICTIONARY. By Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine" and of the "Reference Handbook of the Medical Sciences" etc. Tenth, revised edition. Illustrated. New York: William Wood & Company. 1928. Price \$7.50.

Up-to-date, convenient, authoritative and very much of a necessity to any reader of modern professional literature. The extra tabular material is very useful, and the whole arrangement makes a consultation of the book quick and easy. C. D. H.

UNITED FRUIT COMPANY. Medical Department. Seventeenth Annual Report. General Offices: Boston, Massachusetts. 1928.

This book's primary concern is with tropical diseases, and it makes a very interesting supplement to any textbook on that specialty. There is much on general medicine, too, and the papers are uniformly of a very high type. Quite a number of them have appeared in the profession's journals; most of the others deserve such republication, so that they could be properly preserved and indexed. C. D. H.

PHYSICAL THERAPEUTIC TECHNIC. By Frank Butler Granger, A.B., M.D., Late Physician-in-Chief, Department of Physical Therapeutics, Boston City Hospital, etc. With a foreword by William D. McFee, M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1929. Price \$5.00.

This book, as the preface states, is for the physician who has access to a limited equipment for physical therapy. The various subjects are discussed in a systematic manner with special chapters devoted to each type of treatment. The first short chapter is devoted to electrophysics and defines some of the important terms briefly and clearly. The second chapter briefly tabulates physiological effects produced by electricity. The next section describes various types and forms of electrical energy used therapeutically with short descriptions of proper production of the useful currents. There is an entire section devoted to the treatment of special conditions, such as sciatica, arthritis, neuritis, neuralgia, etc., with personal ideas of application.

The index of diseases is quite complete. It is a very convenient alphabetical classification of diseases and treatment. The discussion on each disease gives a brief outline of physical agents to be used and in many cases outlines a practical yet scientific method of procedure, suggesting other methods of treatment where they are indicated.

This book is particularly valuable for those who use limited equipment. The remarks concerning the employment of physical therapy are short, concise and complete, yet give sufficient details of technic to produce the best effects and avoid harmful results. P. C. S.

THE COMPARATIVE PHYSIOLOGY OF INTERNAL SECRETION. By Lancelot T. Hogben, M.A. (Cantab.), D. Sc. (Lond.) Professor of Zoology in the University of Capetown. New York: The Macmillan Company. Price \$4.00.

This volume is a scholarly presentation of the

acknowledged field of internal secretions and gives a good digest of data from published research sources. Adequate attention is given to historical data with a conservative reference list at the end of each chapter. There is a minimum of discussion to justify the term "comparative" on the title page, although the discourse on chromatic function in chapter III and on developmental processes in chapter VII may with leniency be so regarded. The illustrations of acute vascular and tissue responses do not always seem worth the space given, but embryological and metabolic responses shown in the tadpole figures are strikingly well chosen.

The author departs from the usual terminology by phrasing his seven subchapters in terms of function as follows: Chemical coordination; Adrenalin and neuromuscular coordination; Internal secretions and the chromatic functions; Endocrine factors in secretory processes; The relation of internal secretions to vasomotor regulation; Endocrine functions in metabolism; The role of the ductless glands in metabolism.

The press work is excellent.

C. W. G.

PHYSICAL EXAMINATION AND DIAGNOSTIC ANATOMY.

By Charles B. Slade, M.D., Chief of Clinic in General Medicine and Instructor in Physical Diagnosis in the University and Bellevue Hospital Medical College, New York, 1907 to 1914, etc. Fourth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1929. Price \$2.00.

The fourth edition of this little book is practically identical with the third with the exception of an appendix covering the physical signs of pulmonary tuberculosis. It is a good book intended mainly for students but also useful to the practitioner who wishes to look up some point in physical diagnosis. The subject matter is well arranged and is illustrated by well chosen diagrams and illustrations. In these modern days of laboratory and X-ray diagnosis it is important to impress upon the student that many diseases can still be accurately diagnosed by means of a careful physical examination. The book can be warmly recommended to students and practitioners.

L. H. H.

OSTEOMYELITIS AND COMPOUND FRACTURES And Other Infected Wounds. Treatment by the Method of Drainage and Rest. By H. Winnett Orr, M.D., F.A.C.S., Chief Surgeon of the Nebraska Orthopedic Hospital, etc. Illustrated. St. Louis: The C. V. Mosby Company. 1929. Price \$5.00.

To propound a new method of treatment in this day of surgical advance has become so frequent as to lack novelty; to advocate a radical revision of surgical method and a return to the principles of Lister seems little short of temerity. Yet this epitomizes the gist of Dr. Orr's suggestions and the entire volume is devoted to a historical discussion, possibly a trifle lengthy, of the essentials of Listerism and the unsatisfactory results of our neglect of these principles as exemplified by experiences during the World War. The application of the "Orr Method" to the treatment of infected bone lesions and the results, both in the hands of the author and various confreres, are critically reviewed.

The steps in the treatment are based upon the assumption that these infections, if properly drained

and completely immobilized to insure physiologic rest, will heal in the absence of secondary infection. The author constantly emphasizes the folly of using so-called antiseptics to stimulate wound repair, and stresses the necessity of not impeding the natural reparative processes of the body by our present day faith in wound sterilization.

The proof of any curative method lies, after all, in the results; the statistics and numerous cases cited give testimony that these results, both early and late, are distinctly in advance of those quoted in today's literature. But more important than the exposition of a new method this volume is a delineation of surgical fundamentals. As such it should have wide appeal.

P. S. L.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS or The Action of Drugs in Health and Disease. By Arthur R. Cushny, M.A., M.D., LL.D., F.R.S., Late Professor of Materia Medica and Pharmacology in the University of Edinburgh. Ninth edition, thoroughly revised, by C. W. Edmunds, A.B., M.D., Professor of Materia Medica and Therapeutics in the University of Michigan, Ann Arbor, Mich., and J. A. Gunn, M.A., M.D., D.Sc., Professor of Pharmacology in the University of Oxford, Oxford, England. Illustrated with 73 engravings. Philadelphia: Lea and Febiger. Price \$6.00.

Intended primarily as a textbook for students, this book also offers the physician up-to-date insight into pharmacology, especially in its relation to the treatment and eradication of disease.

Since the appearance of the eighth edition pharmacology has suffered the loss of Professor A. R. Cushny, and C. W. Edmunds, of Ann Arbor, Michigan, and J. A. Gunn, of Oxford, England, have carried on his work and brought the present edition up-to-date with the tenth edition of the United States Pharmacopoeia.

In the light of recent advances in local anesthesia the work on cocaine and its derivatives and substitutes is of great value. The use of insulin has seen rapid strides since the publication of the eighth edition so a short chapter is devoted to its pharmacology. In another chapter the vitamin treatment is covered quite completely. The therapeutic uses of thyroid, pituitary and other endocrine preparations are gradually emerging from a maze of uncertainty of reaction and this book endeavors to record the definitely known pharmacological and therapeutic action of these substances as accepted up to the present time. The action of cardiac therapeutic substances is accurately presented in a modern manner.

In the older edition much space had been devoted to what are now termed obsolescent drugs. Space devoted to these drugs in this edition has been curtailed to a great extent and the entire work can be used as a record of the known and accepted action of well known drugs.

The book is an admirable guide to the student who is just beginning his studies, and is likewise an accurate aid to the advanced investigator and to the physician who aims to keep abreast of modern therapeutic trends. While the authors occasionally reach out into the field of the physiologist this can readily be forgiven when one recalls the intimate relation of pharmacology and physiology.

M. H.

THE JOURNAL

OF THE

Missouri State Medical Association

The Official Organ of the State Association and Affiliated County Societies
Issued Monthly under direction of the Publication Committee

VOLUME 26

DECEMBER, 1929

NUMBER 12

E. J. GOODWIN, M.D., Editor
1023 Missouri Building, St. Louis, Mo.

PUBLICATION { J. C. B. DAVIS, M.D., Chairman
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ORIGINAL ARTICLES

RELATION OF PAIN TO PULMONARY TUBERCULOSIS*

STUART PRITCHARD, M.D.

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There is no definite pain which can be attributed to pulmonary tuberculosis. Pain in the chest in tuberculosis comes from involvement of the parietal pleura. Therefore, in pain suggesting or simulating pleurisy we must consider the possibility of an underlying of pulmonary tuberculosis. When we study pain in the thorax it is wise not to make a definite diagnosis until we have considered three possible sources. First, affections of the thoracic wall; second, affections of the thoracic and abdominal viscera causing referred pain to the thorax; third, pain in and around the intercostal areas due to some abnormality which may cause involvement of the vertebrae or spinal cord.

Affections of the thoracic wall involve muscle and nerve tissue. In the muscles we have myositis and myalgia. In the myositic group we have considerable inflammation of the muscle sheath of the intercostal muscles which causes tenderness on pressure, and it is not easily confused with pleurisy as other muscles are usually involved. Myositis is generally an aftermath of influenza or some definite focal infection and is a secondary manifestation. Myalgia may simulate pleurisy very easily, particularly in the tuberculous patient who is coughing considerably. The mechanical irritation causes intercostal pain. The same thing is true when we use a set of muscles in the arm or leg excessively. If the myalgia is unilateral it may simulate a pleural involvement.

There is a clinical entity known as intercostal neuralgia. Some of its distinguishing features may be discussed. If the pain occurs

for a length of time we have changes in function and later atrophic changes. We may divide the causes of intercostal neuralgia into the pressure group and the toxic group. Pressure may come from an aneurysm of the aorta pressing on the intercostal nerves, or from intrathoracic or mediastinal tumors. Toxic neuralgia may be caused by lead poisoning, diabetes, Bright's disease, and absorption from the intestinal tract. In intercostal neuralgia we have no tenderness along the nerve trunk, except at three points,—where the superficial branches of the intercostal nerves come to the surface, namely along the mid-axillary line, and parasternal and posterior close to the spine. Intercostal neuralgia is generally associated with some type of anemia. It is seven times as frequent in women as in men, is found more frequently on the left than the right side and is seldom found in patients under ten or over fifty years of age. Intercostal neuralgia has no demonstrable lesion in the nerve trunk itself.

In the next division are the affections of the thoracic viscera or abdominal viscera causing referred pain. I will only discuss one of these, and that is pleurisy. You are all familiar with that type of acute pain. It is important to know that we may have certain changes in the pleura which will cause pain. For example, when we have some affection below the diaphragm we may have referred pain from irritation on the under or upper surface of the diaphragm. In infection of the upper part of the pleura pain may be referred to the shoulder, and down over the abdomen simulating an acute appendix. Any clinical entity, such as gallbladder disease, chronic appendicitis, gastric ulcer, may in turn involve the lower part of the diaphragm and cause referred pain to the chest.

It is interesting before we leave pleurisy to note the different types of pain. Besides the acute we have the aching from pleural adhesions. These adhesions act like old rheumatic joints,—they are influenced by weather and by

* Read in the Symposium on Chest Diseases at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

fatigue. They are common in patients who have had tuberculosis.

The theory of pleural pain etiology is interesting. We were taught that friction was in all probability the cause of pleural pain. Arguments for this belief were that pain was often associated with the typical rub of pleurisy. When fluid developed pain often ceased. Strapping the chest frequently relieved pain and finally we observed that when the patient took a long breath the intensity of the pain was increased. The tension theory is also feasible. The advocates of this theory claim the pain is due to pleural tension and not to friction. They claim that many cases of pleural friction is unaccompanied by pain, that the development of fluid in the pleural cavity relieves pain because the tension is relieved and that deep inspiration causes an increase in pain because the tension on the parietal pleura is increased. In the pleurisy of beginning pneumonia the patient needs room for expansion and strapping should not be included in treatment.

Finally, we come to what causes pain in intercostal pain due to disorders of the spine. This type is found in infections of the vertebral bodies, and also in infections around the spinal cord which in turn affects the sensory branches of the nerve root, known as radiculitis.

Some of the affections of the vertebral bodies are spondylitis deformans, tuberculosis, and accidents, while infections and injuries and new growths may cause pressure on the sensory branches of the spinal nerves, hence radiculitis.

The Battle Creek Sanitarium.

DISEASES OF THE CHEST SIMULATING PULMONARY TUBERCULOSIS*

W. J. BRYAN, M.D.

FLAT RIVER, MO.

In discussing diseases of the chest simulating pulmonary tuberculosis, it becomes necessary to take up the question of differential diagnosis. When we are confronted with any case showing physical signs over the chest, or symptoms referring to the lungs, our chief differential diagnosis is to determine whether the lesion is tuberculous or nontuberculous. In the diagnosis of any thoracic condition we have three methods at our command by which we may arrive at reasonable conclusions: (1) Careful history, (2) physical examination, including X-ray study, (3) laboratory methods.

Sufficient information to arrive at a diagnosis may be obtained from any one of the

above methods, or perhaps from any two, but in order to gain all the information in regard to each case, it is essential that we use all available means at our command, namely, the three methods. In the study of a case at the Missouri State Sanatorium we follow the Saranac plan of making no positive diagnosis of tuberculosis unless at least one of five cardinal symptoms is present. Given in the order of their importance, they are: (1) Positive sputum, (2) positive X-ray, (3) pleurisy, (4) hemoptysis, (5) mucous rales. In addition, we have added fistula in ano. Since this evidence may not be grouped in toto under history, physical findings or laboratory methods, I shall discuss these symptoms as they appear under the above headings.

In a very carefully taken history there are a few essential points; the first is hemoptysis, by which is meant the expectoration of a dram or more of bright, fresh blood. While only about 50 per cent of hemoptysis is due to tuberculosis (according to Cabot, of Massachusetts General Hospital, from statistics on 3,444 hemoptysis cases), it is well to consider such a case tuberculous until proven otherwise. Among many conditions of the lung other than tuberculosis causing hemoptysis we must consider heart conditions, lung abscess, bronchiectasis, lung gangrene and chronic bronchitis. The characteristic thing about these last mentioned diseases is that seldom does the patient have a large, profuse hemorrhage but is more apt to cough up blood-streaked sputum. In fact, in the absence of very positive other findings, it is well to consider streaky sputum a sign of chronic bronchitis rather than of tuberculosis. Fishberg states that, "While this, when originating in the lungs, may, in rare cases, be a precursor of a large, profuse hemorrhage, it is, however, a fact that streaky sputum only rarely originates in pulmonary parenchyma. In the vast majority it comes from the nose, throat and especially the bronchi." West says that, "Streaky hemoptysis is far more frequent in bronchitis than in phthisis." It is also well to consider infected teeth, tonsils and sinuses when this symptom is present. For fear that you will misunderstand, I wish to assure you that I am speaking not of advanced tuberculosis, but of the doubtful case. It is true that many tuberculous patients raise color from time to time but, as a rule, there is some history of previous, profuse hemorrhage.

Pleurisy of a primary origin, that is, if it is not associated with upper respiratory in-

* Read in the Symposium on Chest Diseases at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

fections or does not follow in the wake of a recent operation, is due to tubercle bacilli in about 80 per cent of cases. It is much safer to treat this case as one of early tuberculosis with the understanding that the disease has originated in the pleura and may easily invade the lung tissue. The patient should be put in bed and placed on absolute rest for a long period. Later, after the patient is out of bed, his routine of living should be regulated.

Fistula in ano, like pleurisy, in almost every instance is due to tubercle bacilli; and if pulmonary symptoms appear in its presence the diagnosis is most likely tuberculosis.

Cough is one of the most deceiving symptoms. While any cough may be of tuberculous origin, there is a certain type of cough which is very suggestive of tuberculosis in its incipency,—it is the cough which the patient will tell you doesn't "amount to anything." It is dry, non-productive and more or less controllable,—by controllable I mean that the patient can choke it down,—and it usually disappears under bed rest. It is often described by the patient as a clearing of the throat, or "only a bad cold which cannot be broken up." A loose, productive cough is more indicative of suppurative conditions of the lung, such as bronchiectasis, lung abscess and empyema with bronchial fistula. Seldom do we see a productive cough due to tuberculosis, except in the advanced stage when the diagnosis is usually easy. The spasmodic or paroxysmal cough is more apt to be due to pleurisy, yet it does occur occasionally in early tuberculosis and, when non-productive, is very distressing. It is said to be due to ulceration of the trachea at its bifurcation. It may occur in "galloping consumption" or miliary tuberculosis. There is another cough which is dry in nature, produced by pressure on the trachea. It is often described as a "brassy" cough and accompanying it is a sensation of choking. One should be on the lookout in these cases for an enlarged thyroid gland beneath the sternum, or for aneurysm. A small aneurysm hidden behind the heart and great vessels which does not show by X-ray and which does not give physical signs, may explain the entire group of symptoms. One must not forget that the dry, non-productive cough may be due to phthisiophobia. This cough is commonly described as an hysterical cough and is very difficult to differentiate from the cough of early phthisis.

Extremely rapid pulse and nervousness in the presence of low temperature should lead one to suspect hyperthyroidism, even in the absence of an enlarged gland and exophthalmos. While we expect a rapid pulse in tuberculosis, as a rule, it is not out of proportion to the rise in temperature. Nervousness is considered a symptom of tuberculosis, but we have found it more often in the advanced cases, and whenever we observe these symptoms in suspicious cases we have a metabolism test made. Cases of neurotic origin also present these characteristics but usually do not have the extremely rapid pulse.

A physical examination, the second method, is very important. By physical examination I do not mean simply an examination of the chest; I mean a complete physical examination of the entire body, which includes especially the examination of the upper respiratory tract. It is of especial importance that we look carefully into the history for a record of previous tonsillitis and sinusitis, and examine the teeth for caries, gum infection, gold crowns, the tonsils for chronic infection, the nares for evidence of sinus infection. If at all suspicious, X-ray pictures should be carefully taken.

At this time it might be well to explain that upper respiratory infections, especially those of teeth and sinus, are probably responsible for a large percentage of non-tuberculous lesions of the chest. Dr. Kennon Dunham, in a review of 389 cases, found 25 cases of bronchiectasis which were secondary to infected sinus; 42 cases of apical catarrh secondary to sinus, tonsils and teeth; 18 cases of unresolved basal pneumonia secondary to infected sinus; 10 cases following influenza; 21 cases of inactive pulmonary tuberculosis complicated with active nasal sinus infection. So we can readily see from this study alone that it is worth while not to forget the upper respiratory tract. From this study also we must remember that tuberculosis may be complicated by active sinus infection. While it is well if possible to rule out tuberculosis first, it is not always easy and I do not agree with those who think it can be done by the X-ray alone. Dr. David T. Smith, bacteriologist for the New York State Tuberculosis Sanatorium at Ray Brook, has made quite an exhaustive study of fusospirochetal diseases of the lungs. He is inclined to believe that pulmonary gangrene, pulmonary abscess, unresolved pneumonia, bronchiectasis and bloody bron-

chitis are due to fusospirochetal infections. Spirochetes and fusiform bacilli are commonly found in infected teeth and gums and also infected sinuses and tonsils, so it is reasonable to suppose that these organisms reach the lung through the trachea.

Mucous or moist rales in the upper respiratory tract, especially if grouped and following cough and inspiration, are strongly suggestive of tuberculosis. However, they do occur in stenosis of the bronchi, infection from sinusitis, pyorrhea and upper respiratory infection. In these cases the rales are commonly at the base where we do not expect an early tuberculous lesion. The musical rales of the asthmatic are characteristic, yet one must beware of tuberculosis accompanying this disease. This combination is more common than formerly supposed. Increased whispered voice and harsh breath sounds are frequently the first changes noted in the early lesion and, by some examiners, are considered more important than rales.

The X-ray examination rightfully accompanies and is part of any physical examination of the chest. I agree with Dr. Pritchard that the X-ray examination is only a part of the inspection of the chest. To use his words, "We observe the contour, shape, size, type, irregularity in outline and movement, and then use the X-ray to continue our inspection through the medium of the fluoroscope and film." The fluoroscope registers the motion but shows little of the lung markings; stereograms show in detail more defects and become a permanent record. Of late, the X-ray has become of more value to us in the study of non-tuberculous lesions of the chest through the discovery and use of iodized oil in visualizing the bronchial tree. There has been much condemnation of this procedure of late, yet I feel that at times a definite diagnosis can scarcely be made without it. At the Missouri State Sanatorium we have noted no deleterious results from its use.

As for the third method, suffice it to say that by far the most important is sputum analysis. The presence of tubercle bacilli in the sputum makes a diagnosis. This is more important than an X-ray examination and is of special interest to those who do not have access to the X-ray. The test is inexpensive, easily made and far more impressive than a doubtful film. A negative sputum, however, calls for more study. One negative sputum is of little value. I have seen as high as twenty-one negatives

and then found the twenty-second smear loaded with tubercle bacilli. Following a number of negative examinations it is well not to forget that the final test is guinea pig inoculation. A few cc. of sputum injected into a guinea pig may carry sufficient organisms to cause tuberculosis in the guinea pig and yet not be enough to show under the microscope. Spirochetes and fusiform bacilli may be present in the sputum of a tuberculous patient, but their presence in the absence of tubercle bacilli is more suggestive of upper respiratory disease. Fungus infections occur although I have not met with them and the fungi may be found in the sputum in great numbers. A positive Wassermann does not rule out tuberculosis, yet it is of value and will influence the diagnosis and treatment. The blood count, especially the Schilling, is of value in certain cases but not of great diagnostic aid. Urinalysis and all routine tests should be made to rule out possible complications elsewhere in the body.

After all available methods have been resorted to at the Missouri State Sanatorium we still find many of the borderline cases that are very hard to differentiate, and at times the only safe way is to watch these people over a short period of time. It is well in studying doubtful cases to take into consideration whether or not there has been direct contact with a tuberculous individual over a long period of time. On the other hand, we must be careful lest this influence our diagnosis too much.

It is natural for us to think of tuberculosis occurring in certain portions of the lung and of non-tuberculous lesions occurring in other sections of the lung, so for convenience we divide the lung into three horizontal zones,—the upper, middle and the lower,—and into three vertical zones,—the inner, middle and the outer. We know that in the upper zone early tuberculosis is more common, that it is rare in the lower zone, and occasionally a few isolated lesions occur in the middle zone. In the inner zone or the lung root, we find hilum tuberculosis or what is better described as tracheobronchial lymph node tuberculosis. As far as X-ray and physical examination is concerned, I know of no positive findings by which we can say a person has or has not hilum tuberculosis. We can only say that there are or are not enlargements of the lung root and lymph nodes. We play safe by diagnosing this condition tuberculous in the presence of contact and positive

skin test, for in either case, whether it be tuberculous or non-tuberculous, rest will as a rule bring about healing. Enlarged or congested lung roots of patients who live in the city and who have dusty occupations are not considered as seriously as the same amount of congestion in a farmer's lungs. Cardiac conditions will also produce shadows and densities which sometimes simulate tuberculosis. While more commonly in the lung root they do at times appear in the upper zone.

Chemical Building.

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THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS*1

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The surgical treatment of pulmonary tuberculosis for the most part is based upon the idea that the healing of cavities within a lung will be facilitated by measures which will aid in the obliteration of the cavities. Ordinarily, an abscess in the soft tissues heals readily after the evacuation and drainage of its contents because the walls of the abscess fall together and become united by fibrous tissue. The cavity is thus obliterated. In the lungs, however, it often happens, especially in tuberculous abscesses, that even though drainage is accomplished through a bronchus and the trachea, the walls of the cavity are nevertheless prevented from uniting by the fact that adhesions between the lung and a rigid chest wall keep the walls of the cavity separated from each other. Nature attempts to collapse a cavity in a diseased lung but often unsuccessfully. For example, one often sees in a patient who has a pulmonary cavity on one side that the intercostal spaces on that side are narrowed or even obliterated by over-riding of the ribs on each other, that the corresponding half of the diaphragm is elevated and that the mediastinal contents are drawn over to the affected side. All these effects are an expression of natural attempts to diminish the interior of

that side of the thorax and thus to obliterate the cavity by forcing its walls together.

The prevailing methods of surgical treatment are merely designed to assist in the process of obliteration of the cavity. They, therefore, can be regarded as procedures which aim to carry on to a successful conclusion the natural attempts at collapse of the cavities. Incidentally, also, these same measures, by altering the blood and lymph flow through the lung, favor fibrosis and the healing of tuberculous lesions even when there are no cavities in the ordinary sense. The various methods which have been proposed for the accomplishment of these purposes are: (1) the direct compression of the lung by the artificial injection of a gas or some other substance into the pleural cavity; (2) the paralysis of the diaphragm on the affected side so that it will be forced up into the thorax as a result of the abdominal pressure and thus cause compression of the lung, and (3) the direct reduction in size of the corresponding half of the thorax by the removal of portions of the ribs. The actual removal of the diseased tissue has been attempted from time to time, but, although there have been occasional successes, the operative mortality in general has been so high as to be prohibitive. Also, direct external drainage of the cavities, in the same manner that pyogenic abscess cavities of the lungs are sometimes drained, has not met with success often enough to counteract the many failures which have followed its use.

Since the purpose of all the commonly used methods is to accomplish some degree of collapse of the corresponding lung, it becomes evident that the best results are to be expected when the disease is confined to, or at least more pronounced in, one lung. Also, since the mediastinal structures are readily pushed over against the opposite lung and thus interfere with the respiratory activity of that lung, unless they are stabilized somewhat by adhesions or by induration of the mediastinal pleura, any measure of compressive therapy may be injurious and even disastrous if employed injudiciously in some cases.¹ The most nearly ideal case for artificial pneumothorax is one of severe tuberculosis on one side without clinical evidence of involvement of the other lung in a patient whose mediastinal structures are not easily movable. It is not possible in a paper of this limited scope to discuss in a critical manner all the indications for compressive therapy. The presence of a cavity on one side and the occurrence of alarming hemoptysis, however, are both recognized as strong indi-

* Read in the Symposium on Chest Diseases at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

1. From the Department of Surgery, Washington University Medical School and Barnes Hospital, St. Louis.

cations. Some have used pneumothorax in the eral tuberculosis.

The simplest surgical procedure and the one which usually should be tried first is artificial pneumothorax. The direct compression of a lung by the intrapleural injection of a gas was first proposed as long ago as 1821 by James Carson, of Liverpool, but it is only within the last twenty years that the method has been extensively employed. In the period of its early development nitrogen was used because it was thought that this gas would remain in the pleural space longer than air. But, because of the diffusion of gases from the lung and the pleura into the pleural space, the composition of the gas within the pleural cavity soon becomes the same regardless of what gas is introduced. For that reason at the present time air is used for this purpose almost universally. The procedure is practically without danger in suitable cases when proper precautions are taken. The most important of these precautions are, the use of a manometer, in order to assure oneself that the pressure is not exceeding safe limits; the use of relatively small amounts of air at the first fillings (from 300 to 500 cc.); and fluoroscopic examination of the patient after the fills to note the position of the mediastinal structures. The results of properly used pneumothorax treatment are so gratifying that there can be no doubt of the efficacy of the procedure.

The following tables quoted from a recent article by Rist² from the Laennec Hospital of Paris are more modest than some other published results but they are nevertheless sufficiently convincing.

Table 1. *Percentage of Results in 759 Cases of Artificial Pneumothorax*

		per cent	
Healed	51	6.5	} 52 per cent
Clinically well, symptom-free, working, but still under treatment.....	336	45.5	
Conditions unchanged	33	4.	} 48 per cent
Bilateral (alive)	99	13.5	
Deceased	240	30.5	
Total	759	100	

Table 2. *Conditions of Controls (Adhesions)*

		per cent
Able to work.....	8	8.5
Living in institutions (unable to work, conditions unchanged or worse)	35	37.2
Deceased	51	54.2
		99.9

Table 3. *Conditions of Controls (Refusals)*

		per cent
Condition unchanged	13	18
Worse	22	29
Deceased	39	53

One objection to artificial pneumothorax is the necessity of reinjections of air at frequent intervals. In order to avoid this repetition the suggestion has been frequently offered that, instead of air, oil be injected with the expectation that it might remain for a longer time and yet not cause reaction. Archibald and Bernous were apparently the first to recommend this procedure but Kuss has been the most active in its use. For the purpose he employs a paraffin oil in which has been dissolved a small amount of gomenol, a volatile oil distilled from a species of myrtle. The use of this method has been too recent to permit drawing satisfactory conclusions as to its usefulness.

In some cases it is impossible to accomplish a satisfactory compression of a lung by pneumothorax because of the presence of a few bands of adhesions between the lung and the chest wall. Jacobaeus, of Stockholm, has devised an instrument called a thoracoscope which may be inserted through an intercostal space for the purpose of cutting such adhesions by electrocoagulation under direct vision. Unverricht's modification of the instrument has improved it considerably. By this means it is sometimes possible to accomplish a satisfactory compression in a case in which it is otherwise impossible. The same result can also sometimes be accomplished by an open incision in an intercostal space, although with the latter method there is more danger of a tuberculous infection of the wound. However, even after cutting the adhesions the expected compression of the lung does not always occur.

There are also some cases that seem to present suitable indications for artificial pneumothorax but in which it is impossible to inject an effective amount of air because of extensive adhesions that bind the lung firmly to the chest wall. In these cases the production of a paralysis of the corresponding half of the diaphragm and the operation of thoracoplasty will usually accomplish the desired compression.

The production of a paralysis of the corresponding half of the diaphragm is a very simple surgical procedure which is accomplished by the avulsion of the phrenic nerve through a small incision in the neck. The incision that we have found to be the best is a short one (about one and one-half inches long), slightly above and parallel with the clavicle. The nerve is normally found on the anterior surface of the scalenus anticus muscle, but its anatomical position is subject to great variation. After section of the nerve the distal end is slowly twisted out of the thorax. In some cases it

is possible in this way to obtain the entire length of the nerve. The avulsion of a long segment of the nerve is more likely to be followed by a satisfactory paralysis of the diaphragm than is the mere cutting of it because the former method insures the removal of accessory phrenic nerves that are sometimes situated lower down. In a satisfactory case the paralyzed diaphragm may rise as much as three inches and produce a corresponding amount of pressure on the lung. A temporary paralysis, if desired, may be accomplished by merely crushing the nerve. In about two or three months the nerve will be regenerated and the function of the diaphragm will be restored. Although occasionally a surprisingly good result amounting to a complete absence of symptoms occurs after an avulsion of the phrenic nerve, nevertheless in the majority of instances it should not be relied upon exclusively to produce a clinical cure. It is the opinion of most observers that avulsion of the phrenic nerve should generally be considered as merely an adjunct to the operation of thoracoplasty. There is practically no mortality connected with the operation.

The third commonly used surgical procedure is the operation of thoracoplasty. The cases suitable for this operation are those which present the indications for artificial pneumothorax but in which it is impossible to introduce a satisfactory amount of air because of the presence of extensive pleural adhesions. In Sauerbruch's operation small segments of all the ribs on one side, from the first to the eleventh inclusive, are removed close to the spine by subperiosteal resection. In Brauer's operation much longer segments are removed. The typical operation of Sauerbruch is more often ineffective than the more extensive operation of Brauer. In both types of operation the pleura is not opened. Thoracoplasty is a procedure that is well tolerated by the patient, but usually it is wiser to perform it in two stages rather than in one. To those who are not familiar with the results of this operation it seems as if it must be very mutilating and associated with marked deformity. Such is not the case, however; in the average patient the casual observer would not detect any abnormality in appearance except for the long posterior scar. When the patient is clothed no abnormality of any kind can be noted. In general the results of thoracoplasty have been most gratifying in respect to the diminution or disappearance of fever and sputum, the ability to return to a fairly normal life, etc. The operation has offered new hope to a large number of tuberculous patients. The most dra-

matic results of the operation are seen in the patients with tuberculous empyema. This group of patients, formerly practically hopeless and incurable, can now be given a reasonable hope of a clinical cure by means of this operation.

The final results of the operation of thoracoplasty as given by Alexander,³ based on a study of the reports in the literature of 1,159 cases, are as follows:

Apparently completely cured	24.8
Clinically cured	12.0
<hr/>	<hr/>
Total cured	36.8
Greatly improved	8.4
Somewhat improved	16.0
<hr/>	<hr/>
Total improved	24.4
<hr/>	<hr/>
Total cured and improved.....	61.2
Unchanged	2.7
Worse	2.6
<hr/>	<hr/>
Total living and unimproved	5.25
Dead from causes directly or indirectly connected with operation	14.1
Dead from causes not connected with operation, but chiefly from tuberculosis in the unoperated lung	19.4
<hr/>	<hr/>
Total deaths	33.5
<hr/>	<hr/>
Total deaths and unimproved	38.75

These results speak well for themselves; but it must also be realized that most of the patients were operated upon only because various medical specialists in tuberculosis regarded them as hopeless without operation. Doubtless in future years when earlier cases are referred for surgery the results will be still better.

In our own series of nineteen cases of unilateral tuberculosis, exclusive of empyema, in which a complete extrapleural thoracoplasty has been attempted, there have been two deaths ascribable directly to the operation. In one of these the operation was carried out in one stage under local anesthesia. I had felt that it should be performed in two stages but after the operation was about half completed the patient asked for the completion of it in one stage. He died two days later of pulmonary edema. This death could probably have been avoided if the operation had been done in two stages as was originally planned. The other operative death was never satisfactorily explained. The patient was a woman who became comatose after the completion of the first stage and never regained consciousness. She died about twelve hours later. Postmortem examination of the brain was not permitted but there was a possibility of this being a case of cerebral embolism from the lung. These two deaths, therefore, make our operative mortality 10.5 per cent. One other patient died from miliary tuberculosis in the

fifth week following the second stage of the operation. This death, together with the other two just mentioned, makes the mortality from all causes following the operation 15.7 per cent. One other patient developed evidence of extensive involvement of the other lung after the first stage had been completed. The operation was therefore not continued. The other patients are all greatly improved and all doing either their full amount of normal duties or a part of them. Some of the patients who were having frequent pulmonary hemorrhages have undoubtedly been saved from death. In all the cases, except one, tubercle bacilli have disappeared from the sputum. In addition, I have performed this operation on five cases of tuberculous empyema. There has been one death. This death was in a man who had in addition to a tuberculous empyema, diabetes and active syphilis. The remaining four cases are all clinically well. One of them, a patient who previously had presented multiple sinuses, now has one small sinus not yet healed but she is able to perform her duties as housewife. Formerly tuberculous empyema carried with it a mortality of about 100 per cent. This series of 80 per cent recoveries illustrates the hope engendered by this operation.

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BASAL METABOLISM IN PULMONARY TUBERCULOSIS*¹

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Basal metabolism may be defined as the total energy exchange taking place in the human body under basal conditions, which include absolute rest and the post-absorptive state twelve to fourteen hours after a meal. It represents a level of metabolic activity adequate to maintain the cellular function and the production of heat.

An estimation of the metabolism in the human being may be made by direct or indirect calorimetry. The direct procedure, carried

out in a special type of apparatus known as the respiration calorimeter, measures the heat production directly at the same time that katabolic changes are being studied. Indirect calorimetry measures the amount of oxygen consumed, or the carbon dioxide eliminated per square meter of body surface in a given unit of time. From these amounts the basal metabolic rate may be determined by an estimation of the caloric equivalents of these gases.

This latter method is simple, effective, readily utilizable and is in vogue at the present time in clinical practice. The ease of computation makes it of value for the rapid determination of the basal metabolic rate. The procedures followed with the various types of apparatus are essentially the same. A patient under basal conditions is permitted to breathe oxygen from a reservoir tank where the consumption can be measured over a given period of time, usually eight to ten minutes. From this amount the oxygen consumed per minute can be calculated and is corrected for temperature and barometric pressure, the corrected amount then being compared with the normal consumption for this patient of a given square meter body surface area. The percentage of deviation from the normal can thus be calculated.

The earliest work in the study of metabolism and its fundamental principles was done in English and French schools and later in German schools. Lavoisier in 1780 noted the significance in respiration of a gas which he called oxygen, and, working with Séguin, devised an apparatus which measured the increase in heat production caused by exercise, food and exposure.

An interesting fact in the historical development of our knowledge of oxygen is found in the works of John Mayow (1643-1679)^{1,2}, a young Cornishman, a Fellow of the Royal Society, who first called attention to the changes taking place in the blood when the dark venous blood becomes bright red. He attributed this to the absorption of some ingredient from the air which he termed igneo-aerial particles or nitro-aerial spirit of air. In this he was close to the discovery of oxygen. In his argument on the respiration of the fetus he says that "the embryo in its membranes seems to be nearly in the same case and to breathe in very much the same manner as the chick enclosed in the egg. If, however, the fetus is stripped of its membranes, and contracts the muscles of the chest and the diaphragm, there is now a greater expenditure of nitro-aerial particles for muscular effort, and consequently the fetus is under greater necessity to breathe, since nothing is

*Read at the 72nd Annual Meeting of the Missouri State Medical Association, Springfield, May 13-16, 1929.

1. From the Department of Internal Medicine, St. Louis University School of Medicine. Study conducted at Mount St. Rose Sanatorium.

any longer received to supply the want of respiration."

In 1849, Regnault and Reiset (quoted by Du Bois³) developed a closed circuit apparatus for determining the oxygen consumption and carbon dioxide production of animals. The principles of this apparatus are found in the modern metabolic apparatus.

About the same period Liebig made contributions to our knowledge of the chemical processes in the body and divided the foodstuffs into the three great groups.

Simultaneously with these developments two Germans, Bidder and Schmidt, evolved more exact procedures for the calculation of metabolism and added materially to the work of Regnault and Reiset.

In America the foremost workers in this field have been Atwater, Benedict, Lusk and DuBois. Their contributions to the subject are numerous and extremely valuable and through their efforts the procedure of basal metabolism determination has been reduced to a simplicity which renders it of value and gives it a place in routine diagnostic procedures.

About 1908 we find a new wave of interest in the study of basal metabolism in disease, due largely to the development by Benedict of a new and more practical apparatus for the determination of the basal metabolic rate. Its advent was followed by a widespread application of the test to clinical states. It was used in studying the various fevers, disturbances of the thyroid gland, blood dyscrasias, metabolic diseases, etc., and out of this vast amount of experimental evidence certain definite facts appeared.

It is rather a striking fact that while the fundamental principles of basal metabolism determination were developed over one hundred years ago the actual clinical use of the test in any widespread manner has only been a matter of recent years.

The most extensive application of the test has been in the study of disorders of the thyroid gland and herein its greatest value lies. The thyroid gland, the regulator of metabolism through its active chemical agent, thyroxin, determines to a large extent the basal metabolic rate of the individual. The two states of altered metabolism are (1) an increase in metabolic activity known clinically as hyperthyroidism and associated with an elevation of the basal rate; (2) a decrease in metabolic activity—associated with hypothyroidism and a lowered basal rate.

Friedrich Mueller, in 1893 (quoted by King⁴), was the first to note that the metabolism was increased in hyperthyroidism. He arrived at his conclusion by studying the weight

loss on an adequate diet and noting the negative nitrogen balance. His conclusion was confirmed calorimetrically by Magnus-Levy. Since that time a great deal of effort and time have been devoted to the study of this gland and its relation to metabolism.

DuBois³ showed that the degree of elevation of the basal rate is directly proportional to the activity of the gland and hence can be used as a measure of the intensity of hyperthyroidism. Thus, any abnormal condition of the body directly or indirectly influencing the activity of the thyroid gland may be associated with a change in the basal metabolic rate.

Basal metabolism determinations have been made in practically all known clinical conditions, including the fevers of acute and chronic infectious diseases. It has been shown that fever produces an elevation of the basal rate. DuBois states that the average rise in heat production is about 13 per cent for each degree C. (7.2 per cent for each degree F.) It is difficult to say whether this is due to a direct stimulation of the cells by the specific toxin of the infecting organism, or to toxic stimulation of the thyroid gland, or to the cellular stimulation by the toxic products of proteolysis. The existence of fever has been a contraindication to the use of the basal metabolic test in attempting to obtain the exact state of functional activity of the thyroid gland. When the test is made in the presence of fever proper corrections must be made.

METABOLISM IN TUBERCULOSIS

Basal metabolic studies in pulmonary tuberculosis are not very extensive. In starting this study we were struck by the paucity of papers dealing with the subject. Many of the reports are derived from studies on small series of cases; too small, we think to be of definite value in the interpretation of results. The lack of uniformity in the results was also a striking feature.

In 1920 McCann and Barr⁵ published a very complete article on metabolism in tuberculosis. Their experiments were conducted in the calorimeter of the Russell Sage Institute of Pathology. Ten patients were studied with reference to the basal metabolism in afebrile and febrile states, and at the same time the authors studied the specific dynamic action of protein in relation to the metabolism in pulmonary tuberculosis. Their results are most interesting and they conclude, in brief, that, (1) "The basal metabolic rate is normal or very slightly above normal, the range in the rates being from minus 3 to plus 15; (2) an increase in rate occurs with elevation of body temperature (with rectal

temperature of 104 F. metabolism may be 30 per cent above the average); (3) toxic destruction of protein is not large; (4) increase of basal metabolism caused by fever is not as great as that associated with the fever of typhoid or malaria."

In 1926 Gekler and Weigel,⁶ of Albuquerque, N. M., in a report of 80 cases, drew the following conclusions:

1. The basal metabolism in uncomplicated cases of pulmonary tuberculosis if taken at a time when the temperature is within normal limits, is normal.

2. If the rate was increased there were found signs and symptoms of hyperthyroidism.

3. The toxemia of tuberculosis does not increase the basal metabolic rate.

4. The basal metabolic rate can be used to differentiate between tuberculosis, hyperthyroid and psychoneurosis.

F. W. Godbey⁷ stated that "a normal basal metabolic rate may be present even in seriously intoxicated cases."

Brock and Hoskins,⁸ of Trudeau Sanatorium, in a study of five cases, found that the basal metabolism in pulmonary tuberculosis was normal or below normal. They likewise found a slight decrease in the metabolism in summer as compared with winter. They suggested undernourishment and inactivity as probable causes for the low basal rates.

Frank and Safarik,⁹ of Denver, in a comprehensive study of 128 cases, one of the largest series reported, come to the following conclusions:

1. The basal metabolic rate in pulmonary tuberculosis if estimated under basal conditions falls within the accepted normal limits.

2. The test is of value in differentiating tuberculosis, hyperthyroidism and neurosis.

Grafe,¹⁰ in a series of ten cases of severe, nonfebrile, open pulmonary tuberculosis, noted an elevation of the basal metabolic rate of 20 to 36 per cent in 7 of the patients. Three patients with a very severe degree of infection and a temperature over 39 degrees C. showed a marked increase in metabolism (plus 50 to plus 75 per cent). He could find no satisfactory explanation.

From the foregoing it can be seen that all observers with the exception of Grafe report that there is no change in the basal metabolic rate in pulmonary tuberculosis when the test is performed with the patient afebrile and in a basal condition.

PRESENT STUDY

In this present study all patients on whom basal metabolism estimations were to be made were first given a general routine clinical

examination. This included X-ray studies, laboratory work and such special tests as seemed necessary to classify the patient properly according to the tuberculosis present and also to determine the existence of complicating clinical conditions; the most important, from the standpoint of the basal metabolism determination, being hyperthyroidism.

We are well aware of the difficulty attending the differential diagnosis of early pulmonary tuberculosis and mild hyperthyroidism. Both conditions present almost identical symptoms,—the malaise, anorexia, loss of weight, fatigability, slight elevation of temperature, the moderately rapid, labile pulse, nervousness, emotionalism, sweating, warm flushed skin, etc.

There may be in the tuberculous individual a coexistent enlargement of the thyroid gland, seen most frequently in the adolescent years, which further complicates the diagnosis. These two conditions may present many difficulties in diagnosis and it is here that the basal metabolism determination may serve as a valuable differentiating factor.

The well advanced hyperthyroidism does not present the same problems in diagnosis. The absence of a palpable diffuse enlargement of the thyroid gland or the localized adenoma, the absence of a "starey" expression, the widened palpebral fissures or the exophthalmos, the tremor of the extended fingers, the rapid and at times irregular pulse, will assist us in ruling out overactivity of the thyroid gland as a possible factor in cases showing an increase in the basal metabolic rate.

In the medical survey of our patients all these facts were taken into consideration, together with the possibility of underlying focal infections, teeth, tonsils, chronic pelvic infections, renal infections, gallbladder disease, etc.,—which might contribute to the existent toxemia. When the status of the patient was settled he was classified from the standpoint of the tuberculosis into one of three classes,—incipient, moderately advanced and far advanced.

All the cases examined had definite pulmonary activity with elevation of temperature at some time of the day. All tests were made with patients afebrile in the early morning under absolute basal conditions. Where there was any question as to the validity of the test, due to poor cooperation or to an unusually high rate, confirmatory tests were made.

The complete series consisted of forty cases divided into (1) incipient, (2) moderately advanced, (3) far advanced tuberculosis. Each group was subdivided into (a) complicated cases, (b) uncomplicated cases.

RESULTS OF STUDY

1. *Incipient Group.*—There were twelve cases in this group, nine uncomplicated and three complicated. The complications consisted of hyperthyroidism with menopause and nephritis, malnutrition and hypothyroidism. The three basal rates were, respectively, plus 41 per cent, minus 13 per cent and minus 12 per cent. In the uncomplicated group the rates ranged from plus 1 to plus 10 per cent, all within the given normal limits. The average for the entire group was plus 3.9 per cent.

2. *Moderately Advanced Group.*—In this group we had five uncomplicated cases and four complicated. The complications were nephritis, chronic pelvic infection (Neisser), hyperthyroidism, and mitral insufficiency. The rates were, respectively, plus 8, plus 19, plus 29, and plus 33 per cent. The uncomplicated cases showed rates ranging from plus 3 to plus 20 per cent with an average for the group of approximately plus 13 per cent.

3. *Far Advanced Group.*—This group contained the greatest number of cases with a total of nineteen, 16 uncomplicated cases and 3 complicated cases. The basal rates of the complicated cases were, plus 20, plus 3 and plus 3 per cent. The complications were, respectively, chronic Neisserian infection, post-thyroidectomy, and clinical hypothyroidism. The uncomplicated cases had rates varying from plus 8 per cent to plus 37 per cent with an approximate average of plus 21.05 per cent.

In the last group the basal rate is distinctly elevated, the increase in the rate being in direct proportion to the severity of the tuberculosis present.

Discussion.—The facts presented in the group of far advanced cases of pulmonary tuberculosis are extremely interesting. We can only speculate about the possible relationship between the evident toxemia of these cases and the observed elevation of the basal metabolic rate, for we are unable to explain the mechanism through which toxins or the toxic products of proteolysis act upon the individual cells.

It is reasonable to assume a direct stimulation of body cells with an increase in their activity resulting in a greater consumption of oxygen; but whether this increase in activity is in the nature of an allergic reaction in cells already sensitized or whether it is due to toxic stimulation we are not prepared to say. The similarity of the manifestations of toxemia in various infectious diseases, the identical nature of symptoms and the constitutional effects suggest identity in character of the underlying

stimulating factor, which is apparently a non-specific substance or substances associated with all infections. The elevated basal rate which is a frequent accompaniment of infections may be due to the augmented activity of the thyroid gland participating as it does in the general toxic cellular stimulation. In the consequent state of relative or actual hyperactivity the thyroid gland exercises its own stimulating effect upon the cellular metabolism through its thyroxin.

It may be that the toxemia of tuberculosis exerts a more specific effect upon the thyroid gland than do other toxemias, thus stimulating it to a greater degree of activity than other toxemias are capable of doing, the increased activity of the gland then being responsible for the increased basal rate which seems to be elevated in direct proportion to the extent and severity of the tuberculous lesion.

We must not overlook in this connection the possibility of the visceral nervous system as a factor in the production of the increased basal rate. Pottenger¹¹ has shown that lesions in the lung may give rise to reflexes over the parasympathetic or sympathetic nerves. Whether these reflexes affect cellular function directly or indirectly through the mechanism of the endocrine system is a problem still to be solved. Simulation of the suprarenal glands produces a syndrome which simulates very closely the syndrome of hyperthyroidism, but we are not at present justified in assuming a hyperadrenia in tuberculosis as a causative factor in the elevation of the basal rate by stimulation of the thyroid gland.

Whatever the underlying factors may prove to be, the facts are most interesting, and we feel that the possibility of an elevated basal rate in far advanced tuberculosis should make us more careful in our diagnosis of a complicating hyperthyroidism.

CONCLUSIONS

1. In incipient pulmonary tuberculosis the basal metabolic rate is within the normal limits, this fact serving as a differential diagnostic point.

2. In the moderately advanced stage of the disease there is a slight increase in the basal metabolic rate.

3. In the far advanced stage of the disease there is a more definite increase in the basal metabolic rate, the degree of elevation being dependent upon the severity of the case.

4. The stimulation of cellular metabolism may occur directly through the relative hyperactivity of the toxin stimulated thyroid gland,

or indirectly through the visceral nervous system.

5. All advanced cases of tuberculosis with increased basal rates should be examined carefully before making a diagnosis of a complicating hyperthyroidism.

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SPECIAL ARTICLE

ONE WAY OUT

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KANSAS CITY, MO.

The present ferment about state medicine, the nation-wide investigation of the cost of medical service, the apparent failure of high standards of medical education to meet community needs,—these and other questions of health and economics make timely the perusal of a book just sent to *THE JOURNAL* for review. It offers a suggestion as to the cause of some of our troubles, and a suggestion for the alleviation of at least a few of them.

The brochure* (for it is hardly large enough to be called a book) is entitled "The Challenge of Chronic Disease" and is from the pens of Doctors Boas and Michelson of the Montefiore Hospital for Chronic Disease in New York City. Since it represents personal experience its suggestions should receive respectful consideration.

We think the title a misnomer because, instead of calling our attention to a very valuable contribution, it might lead one to throw aside the book as another of the numerous attempts at the discussion of the treatment of chronic diseases. But this book is a valuable contribution not only to medical science and art but also

to the social economics of the present generation in America. For that reason I believe it should be brought more vividly to the attention of the medical and social service public than can be done in an ordinary book review in small type. The theses of the authors, as far as I can summarize them, are:

1. The proportion of people suffering from chronic disease and who need medical care is increasing. Statistics would indicate that this is due to the gradual decline in the mortality from infectious and communicable diseases, and to the gradual lengthening of life. At any rate, it is a well established fact that the so-called chronic diseases are changing their place in mortality statistics, and from being only one fifteenth of the total deaths have become at least one half.

2. As a rule the general hospital objects to the reception of chronic diseases. In the municipal hospitals the chronics are relegated to the left-over spaces and given remarkably little attention on the part of the staff. Private general hospitals frequently refuse the chronic patients, especially those suffering from tuberculosis.

3. The almshouse is not fitted to care for the present needs of the community. As a matter of fact, the larger part of the inmates of almshouses are sick, and sick with chronic disease, not merely aged men and women suffering only from the weaknesses of age. The almshouse, therefore, should be something more than a home for the aged. It should have a hospital and expert medical service. In general, American almshouses are a disgrace to American civilization.

4. The need at the present time in America is for special hospitals for chronic disease. The Montefiore Hospital in New York seems to be the first and best example of the type of hospital advocated by the authors.

The authors wish to show very definitely that chronic disease should not be confused with incurable disease. Their statistics would bear them out in this contention. But I think that the point hardly needs debate among experienced medical men, for all of us realize that only a portion of the chronics should be classified as incurable.

In order to show the needs of patients suffering from chronic disease the authors divide them into three groups: Class A, patients requiring medical care for diagnosis and treatment. Class B, patients requiring chiefly skilled nursing care. Class C, patients requiring only custodial care.

Chronic patients have been found to belong to the different services in the Montefiore Hos-

* *The Challenge of Chronic Diseases*. By Ernst P. Boas, M.D., and Nicholas Michelson, M.D. New York: The Macmillan Company. 1929. Price \$2.50.

pital in the proportions shown in the following table:

	Class A Per cent	Class B Per cent	Class C Per cent
Total	38	18	44
General medicine	47	25	28
Neurological	26	19	55
Cancer	90	3	7
Surgical and orthopedic	27	12	61

(Cases of tuberculosis are excluded from this summary.)

Naturally if one were to consider the construction of such a hospital the first question would be, how long chronics stay on an average in a hospital. The statistics for the Montefiore Hospital showing the number and length of stay in the custodial pavilion in May, 1928, classified by disease, follow:

	No. of Patients	Average Length of Stay in Hospital Years and Months	
Bones and joints.....	11	1	7
Cardiovascular system:			
Thrombo-angiitis obliterans	3	6	2
Hypertension	3		1
Rheumatic heart disease....	4	4	2
Muscular system.....	3	5	10
Nervous system:			
Paralysis agitans	3	5	5
Multiple sclerosis.....	6	4	4
Hemiplegia	5	3	7
Degenerative chorea	3	2	
Contractures of limbs.....	1	6	7
Anterior poliomyelitis	1	6	4
Little's disease	2	4	9
Syphilis	6	5	7
Neoplasm	3	2	11
Senility	2	2	2
Skin disease:			
Scleroderma	1	6	6
Total	57	3	6

The authors have a good deal to say about the organization of the medical and nursing staff. The reader, of course, must agree with them that instead of choosing the least efficient of the medical practitioners of the community, as is apt to be the tendency in a politically minded democracy, one should select for these chronic hospitals the best and most skillful. It means, it seems to me, that the staffs of these hospitals should be chosen by competitive or civil service examinations of the type that has been found so useful in the Cook County Hospital in Illinois.

The only alternative for the chronic hospital is an organization to care for the sick in their homes. This has been found cheaper than in hospitals but requires a very efficient social service. The authors quote the experience of the Benjamin Rose Institute in Cleveland. After a ten year trial of the outpatient method it was decided not to build an institutional home. During one year 292 beneficiaries were

supported at an average cost of \$315 each. As a result of the study of their statistics the directors of the Rose fund have published the following conclusions:

1. Aged persons prefer a pension or monthly allowance to institutional care, in the majority of cases.

2. The amount of the pension or allowance should be flexible to meet the changing needs of the beneficiaries.

3. The average per capita cost of the pension method is less than the per capita cost of care in institutions.

Your reviewer hopes that this brochure of Boas and Michelson will find thoughtful readers both in the medical profession and also among the social service workers in our state.

1000 Rialto Building.

EPILEPSY IN CHILDHOOD

M. G. Peterman, Milwaukee (*Journal A. M. A.*, June 11, 1927), believes that the personality defect or constitutional inferiority is probably an inherited defect and can be demonstrated in the behavior disturbances and reaction patterns that distinguish epileptic children. This opinion is based on a study of more than 500 histories of epileptic children. The character of the disease, the usual progressive degeneration, and the constitutional defects classify epilepsy with the herodofamilial degenerations or abiotrophies. The etiology of the disease is not known and the diagnosis is still made by exclusion. Given a predisposition to epilepsy by heredity, other factors seem necessary for the development of the disease. The immediate cause of the epileptic convulsions, the factor that allows the end-result or explosion, is probably a disorder of the metabolism and may be a shift of the acid-base equilibrium toward the alkaline side. The capricious and inordinate appetite; the common history of constipation, of "stomach trouble," and of "food reactions"; the periodic recurrence of attacks; the nature of status epilepticus; the increased toxicity of the urine obtained during attacks—all suggest coincident if not primary metabolic disorder. The treatment of epilepsy consists of diet, phenobarbital (and its salts) and psychotherapy. The most striking and effective treatment of epilepsy is starvation. The success of the ketogenic diet in the treatment of epilepsy is entirely a question of the ability to carry out the prescribed diet in careful detail. There must be a selection of cases—better perhaps, a selection of parents who are willing to cooperate and able mentally and financially to carry out the diet at home. The selection of cases also must exclude all patients with any evidence of organic lesions, and those patients who late in the disease have reached the stage of mental degeneration. If the diet is properly carried out, the proportions of carbohydrate, protein and fat may be gradually reversed to normal while the attacks are kept under control. Fourteen epileptic children have completed the ketogenic diet treatment and are now on normal diets. All these children have been free of epileptic attacks for from six months to three years after the change to normal diet.

WASHINGTON UNIVERSITY
CLINICS

BINASAL HEMIANOPSIA

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From the Neurological Service of Barnes Hospital.

Presented at the Friday Morning Clinical Conference.

Visual fields and their variations are of great importance in the diagnosis and localization of cerebral lesions. They are particularly significant, however, in cases in which brain tumor is suspected. Whenever the visual pathway is directly or indirectly affected by a growth, interference with the normal pathway of vision can be demonstrated by the character of the visual fields. Even when brain tumor is not suspected, defects in the visual fields throw considerable light on the kind of lesion and its localization.

Of the many varieties of visual fields there is none that is so rarely found as binasal hemianopsia. Pressure on both external angles of the optic chiasm is the only manner in which this type of field can be produced. As these two angles are separated by a mass of partially crossed and direct crossing fibers it is usually assumed that the lesion must be bilateral. It is, however, conceivable that a lesion growing from below upward or from above downward may involve the angles in such a fashion as to cause a binasal hemianopsia but until such a unilateral lesion can be demonstrated by operation or postmortem examination it must be assumed that a double lesion exists.

Case 1. A 16 year old girl was sent to the Barnes Hospital for the purpose of diagnosis.

Her illness had begun with an attack of severe frontal headache about two years before. With the appearance of this headache it was noted that speech had changed and had become of a staccato character and hesitating. After several weeks the headache disappeared for a while but the defect in speech remained and increased in severity. In spite of this she remained in fair health until one month before admission when she quite suddenly became unconscious while at school. As far as can be determined this unconsciousness was not accompanied by any of the manifestations usually associated with epilepsy. Her speech defect became more noticeable. Two weeks before admission she had a severe attack of headache located both in the frontal and occipital regions and accompanied by severe vomiting of a projectile type. She also noted some weakness and numbness of her left hand.

Notable in her past history is the fact that she had had an automobile accident five years before entrance when she was eleven years old. There were no complicating factors associated with this accident; no residual symptoms were noted and there was no litigation intent or settlement action.

On examination she was found to be a bright, intelligent young woman who was oriented, co-operative and who answered questions with promptness. There was a definite defect in her speech which was described in various ways by different observers, such as "staccato," "a catch," "scanning," etc. The speech defect was obviously not an aphasia. It was not due to any central disturbance but seemed to be related to some fault in the peripheral mechanism. At times it suggested markedly the speech of an early multiple sclerosis. The patient had no difficulty in finding the right word but enunciation was defective.

The most significant findings at the first examination were questionable bilateral atrophy of both discs, the staccato speech, already described, sluggish knee jerks, with present and active ankle jerks, and slight uncertainty in the supinator and pronator movements of the left arm and hand. On repeated examinations the pallor of the discs was found to be due to a subsiding mild choking of the discs with some atrophy.

Numerous studies of the visual fields revealed a

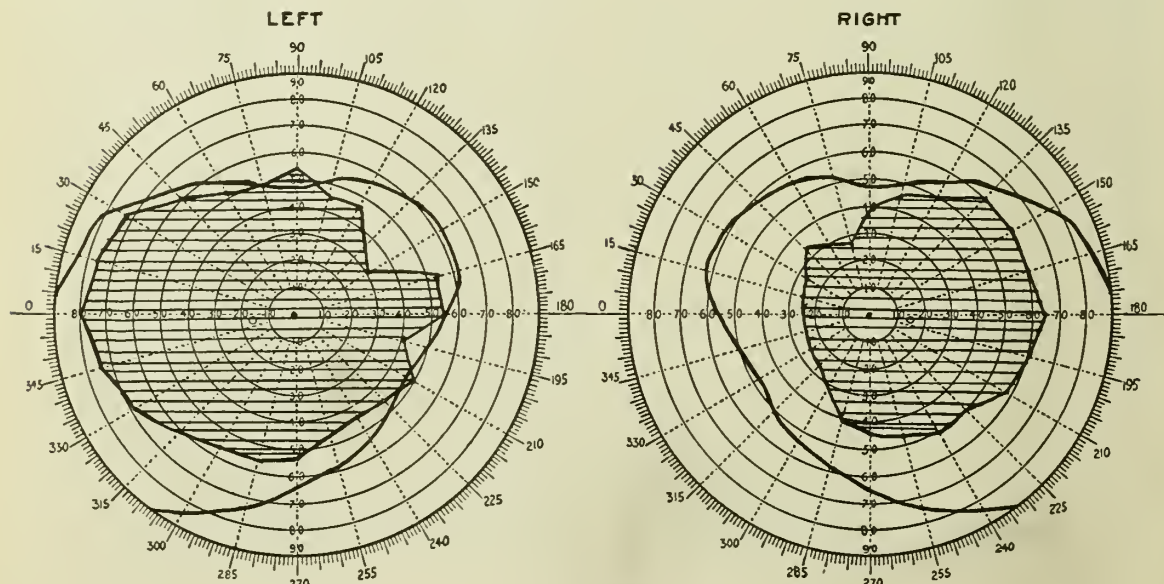


Fig. 1. Visual fields showing binasal defect. Shaded areas represent actual vision. Solid black line represents normal vision.

binasal field defect which was more marked in the left than the right eye. The laboratory examinations were negative. Spinal fluid showed no abnormality and the factor of syphilis could be definitely excluded. X-ray pictures of the skull were indeterminate. There was a calcified area which was considered merely suggestive of a tumor in that region.

With the diagnosis of cerebral tumor in mind an operation was performed with the idea of aspirating a cyst or palpating a tumor. A cystic tumor was seen at the first operation and at a subsequent operation the brain was explored and the tumor was found and removed. It was a glioma with cystic degeneration which lay below and under the surface of the falx and over the corpus callosum. Microscopically it was thought to be an oligodendroglioma.

The patient made a good recovery from the operation and left the hospital in excellent condition. The headaches did not recur and there was no vomiting but the peculiar speech was not changed.

The history and some of the signs in this case suggested the diagnosis of brain tumor but before operation the explanation of the visual fields was difficult. The binasal character was so definitely established that a defect in the direct visual fibers of both eyes was considered certain. Ordinarily this would indicate two lesions. It was found, however, that a large tumor had grown in such a manner as to encroach simultaneously on each of the angles of the chiasm producing a binasal visual defect without involving the other portions of the optic nerves. The localizing effect of the lesion is shown in the diagram.

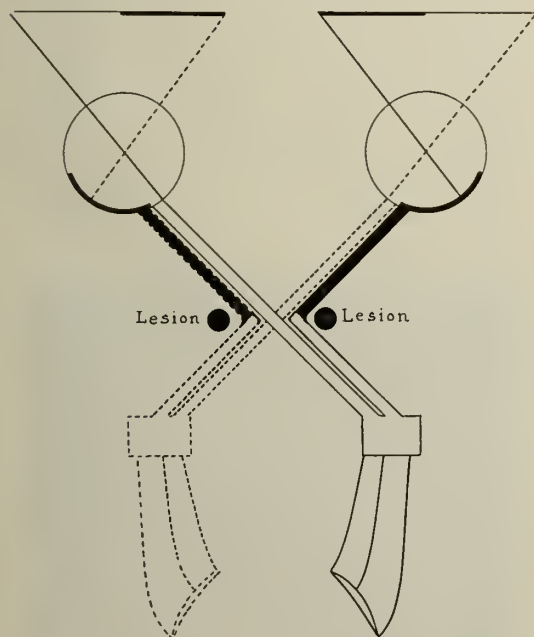


Fig. 2. Diagram shows visual pathway. Dotted line represents left pathway. Solid line represents right pathway. Filled black line represents area of pathway destroyed by lesion.

The relation of trauma, head injuries and physical violence has long been popularly emphasized in the discussion of brain tumors. It was strongly suggested in this patient since she had suffered some injury in the automobile accident several years before. Although in her case the possible effect of injury cannot be excluded, in most cases of this kind the history of trauma may be disregarded. It is believed that the stuttering speech may have been due to a psychic disturbance at the time of the automobile accident. This seems more probable since the speech was not influenced by the operation.

The study of this patient illustrates the value of the study of visual fields in intracranial lesions of all sorts. The presence of a peculiar characteristic field such as a binasal hemianopsia indicates definitely what portion of the visual tract is affected and what kind of a lesion can produce this type of field defect. It is interesting to note that the presence of a bilateral nasal defect can be produced in only one portion of the nasal pathway. For that reason binasal hemianopsia is one of the most positive and direct localizing signs in the field of intracranial disease.

THE VALUE OF THE CYTOLOGICAL STUDY OF EFFUSIONS

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The detailed study of serous effusions is of considerable importance in diagnosis. While it is true that in many cases this is merely of supplemental value, often the proper study of an effusion will make the diagnosis of a case clear. The most practical points that should be studied are the cell structure, the specific gravity, and the search for tubercle bacilli by stain and guinea pig inoculation. It has been repeatedly shown that tubercle bacilli can rarely be demonstrated in the ordinary smears of effusion sediments. Inoculation of sediments from a large amount of fluid, however, is often successful in producing tuberculosis in the guinea pig.

The most satisfactory method of studying the cytology of effusions is that devised by Mandlebaum.¹ Its chief importance lies in the fact that it allows the examination of a considerable amount of fluid with the best preservation of cell structure. This method is as follows: 500 cc. fluid is placed in a large Erlenmeyer flask and allowed to stand overnight in the ice box. The supernatant fluid is decanted and the sediment poured in a large

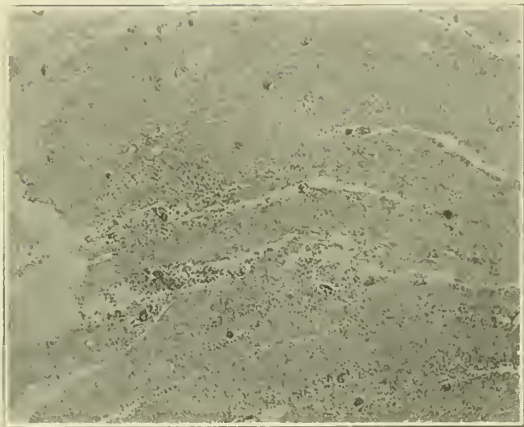


Fig. 1. Pleural fluid from a case of metastatic adenocarcinoma of ovary. Note isolated clumps of cells. (L. P.)

50 cc. centrifuge tube and centrifuged for at least 20 minutes at a moderate speed. The supernatant fluid is again decanted and the sediment hardened with 10 per cent formalin or Zenker's fluid for 24 hours. The fixed sediment is then treated as ordinary tissue by running through alcohols, embedding in paraffin and staining with hematoxylin-eosin. The tissue is cut from above down so as to include all the cellular elements.

By far the greatest value in the study of centrifugates prepared by this method lies in the demonstration of tumor cells. The results are so striking that it should be used in all cases of suspected malignancy. Zemansky² particularly has shown in a large series of cases that 60 per cent of cases of carcinomatous effusions show malignant cells in their accompanying effusions. In this series of 20 cases of proven carcinoma 16, or 80 per cent, show tumor cells which can be identified with great accuracy. The most common picture seen is that demonstrated in Fig. 1. The tumor cells stand out clearly in clumps of large deep-stain-

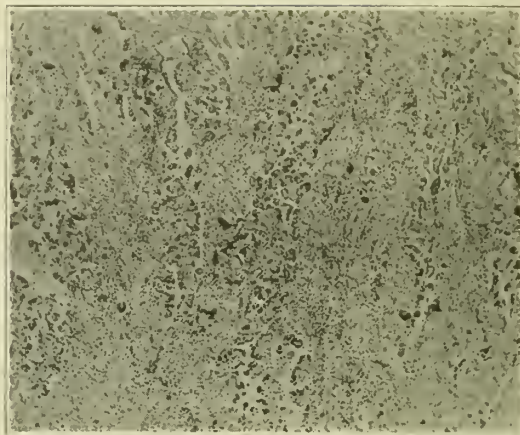


Fig. 3. Section of adenocarcinoma of lung, obtained at autopsy. Same case as Fig. 2. (L. P.)

ing cells surrounded by numerous lymphocytes, polynuclears, mesothelial cells and red blood cells. Often the cells are grouped in acinar arrangement, and a well-formed alveolus may be noted (Fig. 2). This may give a clue to the type and origin of the parent tumor (Fig. 3). In a smaller percentage of cases individual tumor cells alone may be seen and these are somewhat more difficult to diagnose. They can usually be differentiated from mesothelial cells by their atypical appearance, eccentric or multiple nuclei; deep-staining character and presence of mitotic figures (Fig. 4). Sometimes a differentiation is difficult to make. A negative diagnosis would be suggestive of either of the following possibilities,—first, that the effusion is not due to a malignancy; second, if due to a malignancy, that the fluid instead of being in direct contact with the tumor, has resulted from a mechanical obstruction or that the tumor is of such character that it does not "shed" cells into the effusion.

Red blood cells are numerous in malignant

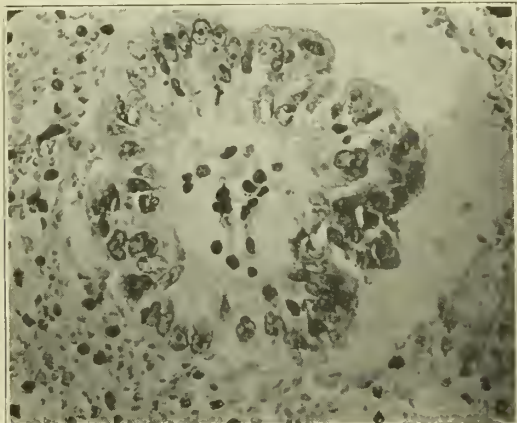


Fig. 2. Pleural fluid from a case of metastatic adenocarcinoma of a bronchus. (H. P.)

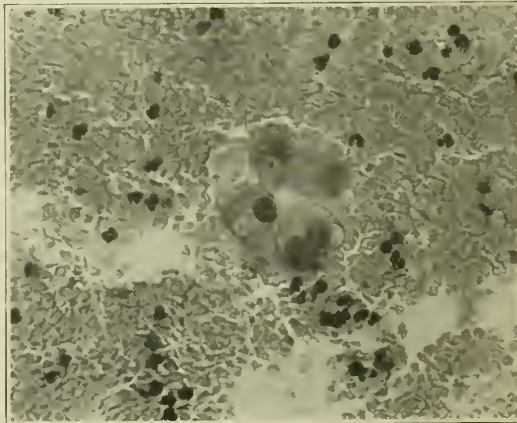


Fig. 4. Pleural fluid from a case of metastatic carcinoma of the breast. Note mitotic figure. (H. P.)

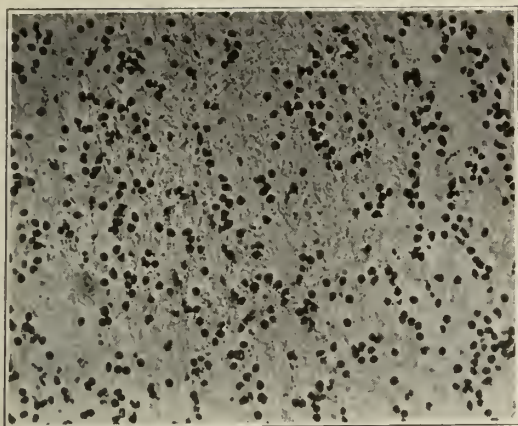


Fig. 5. Pleural fluid from a case of tuberculosis. Predominance of lymphocytes. (H. P.)

effusions, to a greater extent than in any other type of fluid. This is such a constant finding that it is a significant point in the differentiation of effusions.

Tuberculous effusions prepared by Mandlebaum's method show a picture usually described in textbooks. The predominating cell is the small lymphocyte (Fig. 5). Occasionally polynuclear cells may predominate, particularly in acute effusions. Red blood cells are usually few in number.

Transudates from cardionephritics and from patients with cirrhosis of the liver show usually a predominance of mesothelial cells (Fig. 6). Sometimes the lymphocyte is the chief type of cell. This type would, of course, be difficult to differentiate from tuberculous effusions by study of cells. Red blood cells are more numerous than in tuberculous effusions. Phagocytic cells containing blood pigment are present in long standing effusions due to any cause, most usually in cardiac effusions.

The specific gravity of fluids in this series

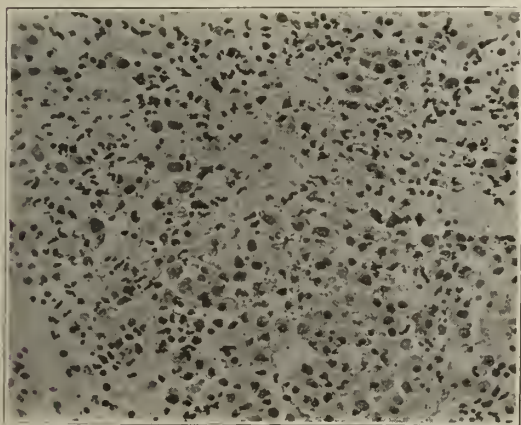


Fig. 6. Pleural fluid from a case of myocarditis. Predominance of mesothelial cells. (H. P.)

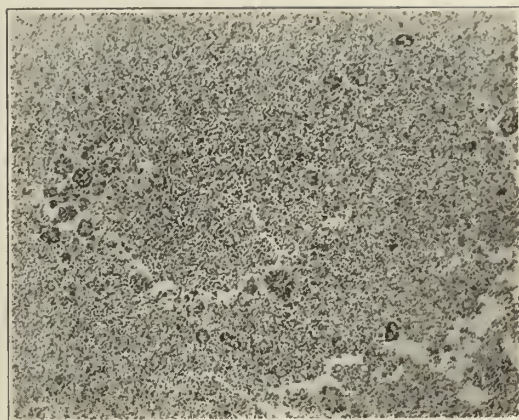


Fig. 7. Pleural fluid from a case of metastatic carcinoma of the breast. (L. P.)

varied enough to be of significance. Tuberculous effusions were highest, averaging 1.023; malignant effusions averaged 1.017; while transudates of cardionephritics and of patients with cirrhosis of the liver averaged 1.012.

Four protocols are added of cases in which the study of the sediments was of value and interest.

Case 1. G. B., female, aged 45, gave a history of constant cough and hemorrhages for six months. Physical examination and X-ray showed a process in the right midlung. Ten days after the initial examination a nodule appeared on the scalp. Biopsy report was returned as a "sarcoma." Three weeks later fluid became apparent in the right pleural cavity. A slightly turbid fluid with numerous blood cells was removed; specific gravity was 1.018. The sediment showed numerous carcinoma cells, often in alveolar arrangement (Fig. 2). Diagnosis, adenocarcinoma, probably from the bronchus. Postmortem showed an adenocarcinoma of the lung, probably originating from a bronchus with metastases to the right pleura and most of the organs (Fig. 3).

Case 2. L. M., female, aged 59, gave a history of breast removal for carcinoma six years previously. The patient remained in good health until three

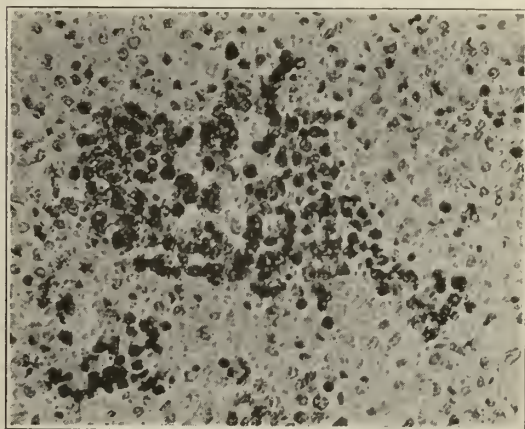


Fig. 8. Peritoneal fluid from a case of lymphosarcoma. (H. P.)

months prior to hospital admission when she developed marked shortness of breath. A right basal effusion was found. Aspiration revealed a slightly turbid fluid with many blood cells; specific gravity was 1.017. Study of the sediment showed many tumor cells, frequently in alveolar arrangement (Fig. 7). Shortly afterward a gland appeared in the right neck which on biopsy proved to be an adenocarcinoma of similar type to that noted in the fluid.

Case 3. L. R. D., female, aged 68, gave a history of cough and abdominal distention for two months. Physical examination revealed the presence of fluid in the left chest and a growing mass in the pelvis, probably ovarian. The fluid from the left pleural cavity revealed tumor cells (Fig. 1). Two months later, a peritoneal effusion was discovered. Study of the fluid showed an exactly similar type of tumor cell. The patient died shortly afterward. No autopsy was obtained. Diagnosis: adenocarcinoma of the ovary with metastases to the pleura and peritoneum.

Case 4. B. M., male, aged 18, gave a history of cough, pain in the abdomen and abdominal distention. Examination showed the presence of ascites, pleural effusion, a large retroperitoneal mass (on rectal examination). From the peritoneal cavity 5600 cc. of a bloody fluid was removed, specific gravity 1.019. Study of the sediment showed clumps of large lymphocytes with dark-staining nuclei (Fig. 8). A diagnosis of lymphosarcoma was made. A gland which appeared in the groin was removed and on study proved to be a lymphosarcoma. It showed the same type of cell which was noted in the fluid.

Conclusions.—Tumor cells can be demonstrated in malignant effusions in a large majority of cases by Mandlebaum's method. A predominance of lymphocytes in a serous effusion is suggestive of tuberculosis while a predominance of mesothelial cells is suggestive of a transudate.

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COLLEGE HEALTH SERVICE REDUCES ILLNESSES

Institutions of learning must wake up to the fact that they are responsible in a democracy for the health as well as the scholastic attainment of its future citizens. This is the burden of an article entitled "Health, Grades and Taxes," by Edward L. Markthaler and George W. Hunter in the September issue of *Hygeia*.

In a California college which instituted a constructive health program, the number of days lost through illness decreased in a period of three years to one-fifth of the original number.

This experience shows not only the value of early diagnosis and treatment in diseases of young people of college age, but also the value of the habit of going to reliable sources for medical advice and treatment, in the opinion of the writers. If a dispensary is centrally located on a college campus, the students get the habit of dropping in in time to ward off trivial ailments that, if neglected, will without doubt soon become bigger ones.

THE TREATMENT OF THE PATIENT WITH PNEUMONIA

The author emphasizes the fact that to all practical purposes the medical profession is still as helpless in the treatment of pneumonia as it was a quarter of a century ago.

Much, however, has been learned as to treatment of the pneumonia patient in contradistinction to treatment of the disease itself.

The most essential single object to be accomplished in the handling of these patients is rest, not only physical but mental and emotional as well. Quiet surroundings are needed. Visitors should be excluded.

The patient should be allowed to select his own position in bed. Cough should be combated by codeine, morphine or opium in another form. Bromides are also indicated when rest cannot be accomplished by physical means alone.

Where the cough is loose it is probably physiological in intent and is best left alone. When dry and irritating, relief may be obtained by ammonium chloride or the iodides. In still other cases sedatives may be indicated.

Some cases do splendidly under the open-air treatment, others badly, especially those of influenzal origin. Persons from tropical countries cannot stand this treatment.

The room-temperature should be low, except in cases of pneumonia following measles, scarlet fever or influenza and in old age or in traumatic or debilitated cases.

Oxygen is very useful in cases suffering from cyanosis and in certain unexplained cases of dyspnea.

Most fatal cases of pneumonia terminate with a circulatory failure. The basic pathology in most cases of cardiac failure is a myocardial degeneration with a consequent giving way, a dilatation of that portion of the heart exposed to stress, in this disease the right heart. In young healthy subjects preliminary digitalis therapy is not indicated unless signs of circulatory embarrassment appear. In adults and aged patients the preliminary use of digitalis may save the day. In some instances strophanthus, caffeine and strychnia give better results. Caffeine works admirably when the circulatory failure is associated with a nervous defect.

A method of treatment of associated crises of the pulmonary and cardiovascular systems is often seen in a properly timed venesection. This is particularly valuable in the early stages of the disease when the pulmonary congestion, perhaps with edema, is especially critical.

The most satisfactory measures for relieving tympanites are pituitrin or adrenalin, singly or associated, camphor, caffeine and occasionally strychnine with enemas.

The most satisfactory of the less frequently observed renal insufficiency is usually along circulatory lines, but theosin, diuretin and caffeine are usually sufficient to reestablish kidney action.

Water, fruit juices and sugar solutions given in abundance are always beneficial. Sufficient alkali to hold the urine nearly at the amphoteric point is often advisable.

Delirium usually calls for the active exhibition of chloral, of the bromides, or for morphine, opium or codeine.

Diet is of little importance.

The patient who recovers from pneumonia will not be completely back to his normal condition for perhaps six months.—*International Clinics*, December, 1927.

THE JOURNAL

OF THE

Missouri State Medical Association

DECEMBER, 1929

EDITORIALS

FOUR YEAR MEDICAL COURSE AT STATE UNIVERSITY RECOMMEND- ED TO SURVEY COMMISSION

One of the most encouraging incidents in the progress of medicine in Missouri in recent years is the strong appeal to Governor Caulfield's Survey Commission to incorporate a recommendation that the full four year course in medicine be reestablished at the State University and that there be erected at Columbia a State General Hospital to provide clinical material for the final two years of the course. This plan was strongly urged upon the commission through our committee to cooperate with it in this particular and was further stimulated by Dr. Donald Cottrell and Dr. G. S. Strayer, of Columbia University, New York, who among others were employed as experts to survey the educational facilities of the state. Their report is voluminous and touches every phase of our educational system, praising where praise is deserved, frankly exposing the defects in clear and unbiased language and submitting recommendations for establishing a modern system of educating the youth of our state.

"The youths in this state," Dr. Strayer said in closing the summary of his report, "are being taught to be failures in life because of denial of educational facilities." Of the graduates in the medical school, Allen McReynolds, a member of the commission, said "they have to scatter all over the country after they have had two years at Missouri University in order to finish up in medicine." The report of Drs. Cottrell and Strayer further recommends that the State University provide instruction for nurses, general instruction in public health, and for medical social workers. It was recommended to the commission that in the program to extend the medical course to four years a provision be made for the expenditure of \$4,600,000 over a period of ten years to erect the hospital and to provide a new building for the medical school.

The Veterans' Bureau is now adding to every general hospital for the care of the veterans a

psychopathic department. If the plan for the General Hospital at Columbia is adopted, some provision should be made for a psychopathic division.

It is sincerely hoped that the Survey Commission will be so impressed by the recommendations of the experts from New York and by the appeals from the Missouri State Medical Association as to cause them to include in their report to Governor Caulfield an enthusiastic indorsement of the plan to reestablish the four year course in medicine at the State University and the erection of the State Hospital.

AMERICAN BAR ASSOCIATION AP- PROVES PSYCHIATRIC EXAMINA- TION OF FELONS

After many years of earnest effort by the American Medical Association and its constituent state associations and of the American Psychiatric Association to obtain the cooperation of the American Bar Association in promoting a system for the psychiatric examination of persons accused of a felony, the bar association recently adopted resolutions committing the legal profession to this plan.

There can be no doubt concerning the immense amount of good that will be accomplished when the criminal courts throughout the country have taken full advantage of the knowledge concerning the behavior of criminals now obtainable through psychiatric examination. The reports from Massachusetts where the plan has been in force for many years, although in that state restricted to capital offenses, are convincing evidence of the benefits derived by the courts, the people, and the criminal himself, while in St. Louis the psychiatric clinic has established a record, although on a smaller scale, that compares favorably with the work done in Massachusetts.

The resolutions adopted by the bar association are succinct, concise and comprehensive. They read:

That there be available to every juvenile and criminal court a psychiatric service.

That no criminal be sentenced for any felony in any case where the judge has any discretion as to the sentence until a psychiatric report is filed.

That a psychiatric report be made on every prisoner before release.

That each state establish a system of administrative transfer and parole and that no decision of a parole or transfer be made without a psychiatric report.

In Missouri, plans were laid for the framework of machinery to establish a system of psychiatric examinations to fulfill all the pro-

visions of these resolutions. A bill was introduced at the last session of our legislature and recommended for passage, but in the confusion of the closing days of the session it was lost sight of and failed to pass. This bill created a department of mental diseases and provided for the examination of persons pleading insanity as a defense for a capital crime by the staffs of the state hospitals, the reports to be made to the court and to the attorneys for the prosecution and defense. In St. Louis, the psychiatric clinic already serves when called upon by the courts and, as said, has proved a conspicuous success.

We congratulate the American Bar Association, the American Medical Association and the American Psychiatric Association upon the correlation of these important bodies in the effort to solve the puzzling problem of why criminals behave like criminals. The medical profession can do little toward reducing the crime wave but it can do much in guiding the hand of justice to a merciful assessment of punishment when the courts make practical application of the knowledge we have developed concerning the causes of criminal behavior.

FIFTY YEARS IN PRACTICE

The golden jubilee of thirteen members of the St. Louis Medical Society who have practiced medicine fifty years or more was fittingly observed on the evening of November 19 by a meeting and reception at the St. Louis Medical Society building. By motion of Dr. Norville Wallace Sharpe, signed photographs of the jubilarians and of other St. Louis physicians as they attain a half century of service, will be appropriately framed and displayed in the Medical Society building. The jubilarians, their alma maters and years of graduation follow:

Gibbon W. Carson, Missouri Medical College, 1878.

Norman B. Carson, St. Louis Medical College, 1868.

Meyer J. Epstein, Missouri Medical College, 1877.

Francis R. Fry, St. Louis Medical College, 1879.

Joseph Grindon, St. Louis Medical College, 1879.

Frank P. Johnson, Western Reserve University School of Medicine, 1877.

Alonzo R. Kieffer, Missouri Medical College, 1879.

William J. Langan, Missouri Medical College, 1875.

Heine Marks, Cincinnati College of Medicine and Surgery, 1878.

Tilly A. Martin, Bellevue Hospital Medical College, 1870.

George Richter, University of Giessen, 1874.

Henry Schwarz, St. Louis Medical College, 1879.

C. C. VanderBeck, Jefferson Medical College of Philadelphia, 1872.

Arrangement of the program was in the hands of the veterans themselves. They invited Lon O. Hocker, president of the Board of Police Commissioners, to make the only address by a layman, and chose Dr. Gib Carson and Dr. Alonzo R. Kieffer to speak for the jubilarians.

The family physician, "last representative of a vanished race," was the subject of a glowing eulogy by Mr. Hocker, whose family physician is Dr. Tilly A. Martin. Mr. Hocker related that he had proposed at first to talk on the half century's advances in medical science, but, after glancing at the mountain of books on that subject placed before him at the Medical Society Library, and then "glancing up at the empty shelves," had been impelled to ask, "Was nothing at all done in medicine before fifty years ago?"

In contrast to the family physician he pictured the specialist, predicting in time "one surgeon who operates on the right kidney and another surgeon who operates on the left kidney." He mentioned the book, "The Specialist," and remarked that the man in the Ford factory who screws on "nut No. 63" hour after hour is a "specialist." He contrasted the mosaic made up of a number of specialized reports on separate phases of a man's physical condition to the integral, comprehensive picture obtained by the old-time physician, who looks at the whole man.

Five of the jubilarians, besides Dr. Gib Carson and Dr. Kieffer, were able to attend the celebration. The oldest in service among those present were Dr. VanderBeck, who has practiced 57 years, and Dr. Richter with 55 years of practice. Dr. Norman B. Carson, who has practiced medicine for 61 years, could not be present. Others who attended were Drs. Heine Marks, Frank P. Johnson and Joseph Grindon. Dr. Grindon's jubilee was celebrated last spring. Dr. Charles G. Rohlfing, who has practiced more than fifty years, died before he could be thus honored.

"Doctors I have known" were discussed by Dr. Gib Carson. He told many anecdotes of old-time physicians in St. Louis. One was of Dr. G. M. B. Maughs, "who used to begin his lecture as he hitched his horse in front of Missouri Medical College at Twenty-Second and Lucas, and enter the amphitheater in the middle of a sentence. Dr. Maughs had a niece who visited him frequently and I frequently visited the niece. Once in the middle of a lecture he

looked down, saw me at his feet, and said without changing his tone, 'Carson, Sarah says come up tonight.'"

Dr. A. R. Kieffer, who could, one of his former students remarked after the meeting, "probably close his eyes, stick his hands in his pockets and trace any nerve of the body from its deep origin to its endings," spoke on the advances of 50 years. He pointed out that the discovery of Pasteur came about the time of his birth and that of Lister at the time of his graduation in medicine. Touching on the old question, whether medicine is a science or an art, he said it was becoming increasingly scientific and that most of its improvements in 50 years had come through research scientists. "But," he said, "medicine had its beginning in empiricism, and we must still retain some respect for empiricism. There are instances where its findings coincide exactly with the findings of science."

He cited a book he studied in medical school, which said ships could approach a malaria-ridden island much closer to windward than to leeward, because "the wind carried the miasma so far. You can transpose empiricism to science by substituting 'mosquitoes' for 'miasma.' Fifty years ago we knew nothing about the plasmodium malariae. Now we know much about it. But we were giving quinine for malaria 50 years ago with as much knowledge of its effect as we have now."

BLOOD DONORS

In March, 1926, the blood transfusion committee of the Community Council, St. Louis, was organized at the suggestion of Dr. J. J. Singer, who read of the establishment of such a service in London by the Red Cross. The purpose is to secure a central blood donors' list to be used by physicians and hospitals needing the services of such donors.

At a meeting of the committee on November 15, 1929, a report was given by the chairman. The report states that at the present time there are 86 donors on the list. During the three years that the transfusion committee has operated, 340 transfusions have been given by 122 donors. Seventeen different hospitals have used the service. While 26 transfusions have been given free of charge, it is the policy of the committee to pay \$25 for each transfusion of 500 cc. of blood. Donors called but not used after making the trip to the hospital are paid by the hospital or the patient for the time consumed.

The central donor list is filed at the Central Directory for Nurses, where calls for donors are received. This organization cooperates

with the committee by connecting the donor with the hospital where his services are needed. At the office of the Community Council applications of prospective donors are received and instructions given for the necessary examinations and blood typing. The laboratories giving their services without charge for blood grouping and Wassermann tests are those at Barnes Hospital, Barnard Free Skin and Cancer Hospital, City Hospital, Jewish Hospital, St. Louis University Medical School and St. Luke's Hospital. Usually each hospital has an additional list of donors composed, for the greater part, of students.

The Police Department has a donor list made up of men from their department who are available for cases of policemen and their families.

Since March, 1926, the students of St. Louis University Medical School have been giving their blood free for transfusions for the indigent poor in the various hospitals of the city. Each year the sophomore class volunteers its services. The agency for the administration of this service is the Student Health Service of the university. The students have their blood grouped and tested, and are physically examined by the Student Health Service to determine their fitness to give blood and also to protect them from injury to their own health by giving blood when they are not physically able to do so. To determine a donor's fitness the records of the Student Health Service are utilized and when indicated a special physical examination is made. Calls for service of this sort are handled through the office of the Student Health Service. Forty-five transfusions have been given by the students.

THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The pages of popular magazines, of newspapers and of medical journals contain an increasing number of advertisements of food products. The growers, producers and distributors of such products have learned the value of the health appeal. Great campaigns are being promoted by cooperative organizations in favor of meat, of flour, of vegetables, of fruits, and of other natural foods. The vitamin is the most interesting and mysterious substance that has appeared on the medical scene, and the alert copy writers have not failed to dramatize the interest that it has awakened in both the medical profession and the public. Malted milks under various disguises are vaunted as tonics and as sleep producers. The

medical profession, awake to the newer knowledge of physiology, is turning its interest increasingly to the promotion of health and to the use of properly selected foods for such purposes. Moreover, diet is recognized as of great importance in the control of diseases affecting the digestive tract and for the management of the degenerative diseases; diseases of the kidneys and of the circulation. As these trends in medical practice have developed, the need of somebody to express judgment of food products and food advertising, in the same way that the Council on Pharmacy and Chemistry considers medical preparations, has become apparent. The Council has therefore created a special committee on foods. The preliminary form of the rules under which this committee will function appears on page 1144 of THE JOURNAL A. M. A.

The manufacturers of food products, distributors and all others interested in the promotion of natural food substances or of modified foods, for which claims are made in relation to the promotion of good health, will be asked to submit to the committee the products and the advertising material used in advancing their sale. If a product is of known composition, if the claims made for it are justified by the composition and by modern knowledge of digestion and assimilation, if the advertising is up to the standards set by the Council on Pharmacy and Chemistry, advertisements of the products will be permitted in the publications of the American Medical Association, the product will be listed in the book on foods similar to New and Nonofficial Remedies, and the manufacturers will be permitted to use a symbol indicating that the product has been accepted by the committee for listing in the book of foods. If the product cannot reach the standards set forth, a report will be published as is done for drug products, and advertising of the preparations will not be permitted in the publications of the American Medical Association. Already several leading manufacturers have indicated their desire to cooperate with the committee; the great advertising agencies have welcomed the initiation of such a body; and there is reason to believe that the work of the committee will do much to sustain scientific standards in a field already mired in a morass of hokum and folly.

Through its public work, particularly in the last decade, the American Medical Association has gained the respect and admiration of vast numbers of the American people. That good will is an asset of no slight importance to public health. The work of the Committee on Foods should do much to carry still further the

message of good hygiene and of scientific medicine. In beginning this new work, the Council on Pharmacy and Chemistry again asks the complete support of the medical profession. Only by such support can the work have the fullest success. Only by the sincere cooperation of the medical profession with the committee can it achieve the prestige necessary to complete attainment of its objects.—*Jour. A. M. A.*

NEWS NOTES

Professor Ernst Friedrich Mueller, of the University of Hamburg, Germany, and Dr. Elliott P. Joslin, of Harvard University Medical School, Boston, were guests of the St. Louis Medical Society, Tuesday evening, November 5, 1929, and gave addresses on "The Prognosis of Diabetes Mellitus from the Medical and Surgical Point of View."

The International Congress for Mental Hygiene will hold its first meeting at Washington, D. C., May 5-10, 1930. The American Psychiatric Association and the American Association for the Study of the Feeble-minded will meet concurrently with the Congress which has as its objective the marshalling of all the mental hygiene forces of the world. Already many foreign countries have signified their intention of taking part in the Congress. All the fields in which mental hygiene is a factor will be represented in the program and it is confidently expected that a great impetus will thus be given to the understanding of the importance of mental hygiene in social life.

At a special meeting of the Boone County Medical Society at Columbia, Monday evening, October 21, Dr. William H. Park, New York, gave an illustrated address on "The Newer Serum Treatment of Pneumonia." Dr. Park is professor of bacteriology and hygiene of the University and Bellevue Hospital Medical College, and director of the Bureau of Laboratories, New York City Department of Health, and also director of the New York Serum Laboratory, Otisville, New York. Members from Audrain, Callaway, Howard, Montgomery, Cole, Cooper, Randolph, Chariton and Pettis Counties were also present, making a total of ninety-four.

At the regular meeting of the Society on November 5, Dr. Grayson Carroll, St. Louis, read a paper composed by himself and Dr. Bransford Lewis, St. Louis, entitled "The Movable Kidney; Its Reality; Its Menace to Health; Its Curability."

Dr. C. H. Shutt, St. Louis, President of the St. Louis Medical Society, and Dr. Sinclair Luton, St. Louis, were guests of the Bond, Fayette and Clinton (Illinois) County Medical Societies at Greenville, October 11, 1929. Physicians from Madison and Montgomery Counties also attended. The subject of Dr. Shutt's address was "Gallbladder Troubles," and Dr. Luton gave an address on "Common Disorders of the Heart."

Dr. Sinclair Luton, St. Louis, read a paper before the Tulsa (Oklahoma) Medical Society, October 21, 1929, entitled "Examination of the Heart in Chronic Disease" and demonstrated a motion picture titled "The Valves of the Heart in Action." On October 22 he spoke on "Standard Heart Examination Forms," at the meeting of the Frisco Railroad Medical Association held at Tulsa and showed the motion picture, "The Valves of the Heart in Action."

The Fifth International Congress of Physiotherapy will meet at Liege, Belgium, September 4-8, 1930. Dr. William Benham Snow, New York City, editor of *Physical Therapeutics*, who is president of the American Section of the Congress, reports that the organization of the Congress is progressing rapidly and he wishes to draw the attention of physicians to the real union which will take place in Liege on the occasion of the International Exposition and the Centenary of Independence. Physicians wishing to enroll may send their titles and subscriptions for membership in the Congress to Dr. Dubois-Trepagne, Secretary-General, 25 Louvrex Street, Liege, Belgium.

The United States Civil Service Commission announces open competitive examinations for senior medical officer (internal medicine), junior medical officer (intern) and assistant medical officer (dermatology). Applications for senior medical officer and junior medical officer must be on file with the secretary of the Fourth U. S. Civil Service District, Washington, D. C., not later than December 26, and for medical officer not later than December 4. The examinations are to fill vacancies in St. Elizabeth's Hospital, Washington, D. C., and in the U. S. Public Health Service, Ellis Island, N. Y. Competitors will not be required to report for examination at any place, but will be rated on their education, training, and experience. Full information may be obtained from the Fourth U. S. Civil Service District, Washington, D. C., or the secretary of the U. S. Civil Service Board of Examiners at the postoffice in any city.

The following articles have been accepted for New and Nonofficial remedies:

Cutter Laboratory

Diphtheria Toxoid-Cutter

Eli Lilly & Co.

Merthiolate

Winthrop Chemical Co., Inc.

Luminal Capsules, 1½ grains.

Dr. Willard Bartlett, St. Louis, was a guest of the Memphis and Shelby County Medical Society at Memphis, October 15, and gave an address on "Respiratory Complications of Surgical Operations." The next day, October 16, he was a guest of the Walnut Log Medical Society (of West Tennessee and West Kentucky) at its eighth annual meeting on Reelfoot Lake, Tennessee, and gave a lecture on "Goiter." Three other St. Louis physicians were guests of the Walnut Log Medical Society on October 15. Their names and the subjects of their addresses follow: Dr. Elsworth Smith, "The Role of the Kidney in Hypertensive Heart Disease"; Dr. Drew Luten, "Coronary Occlusion"; Dr. Samuel B. Grant, "The Use of Diuretics in Congestive Heart Failure."

"Keep well—Consult Your Family Physician" is the slogan proposed as a part of the advertising campaign to be fostered by the American Pharmaceutical Manufacturers' Association in the coming year. Definite action on the nature of this campaign as well as action on the future research program of the Association will be taken at the semi-annual meeting to be held in the Hotel Washington, Washington, D. C., December 16-17, 1929. The first day of the meeting will be given over largely to problems of executive nature and a general discussion of ways and means of obtaining greater efficiency and economy in distribution. The second day will be devoted primarily to meeting members of the various government bureaus and departments with which the members of the Pharmaceutical Association come in contact. A visit to the Food, Drug, and Insecticide Administration, Department of Agriculture and to the Prohibition and Narcotic Divisions of the Treasury Department will occupy the forenoon of December 17. At the luncheon in the afternoon Senator George H. Moses, of New Hampshire, President pro tempore of the United States Senate, will be the guest of honor and address the members. There will be addresses by other government officials and the reading and discussion of reports of the research board and the contact committee of the Pharmaceutical Association.

Among the important topics to be discussed in the executive sessions are Publicity; The Proposed Census of Dispensing Physicians; Institutional Advertising, and the "Consult Your Family Physician" campaign.



"Health Greetings 1929," this year's Christmas Health Seal, is being sent to people throughout the United States carrying its message of good cheer and the reassurance to men and women stricken with tuberculosis that they are not fighting their fight alone. The seal is a two-fold symbol—the emblem of hope and health to the sufferer from tuberculosis and the insignia of better community health and protection for each individual against the disease. Enormous progress, once thought impossible, has been made since the seal first made its appearance in this country in 1907. These colorful seals decorating letters, boxes and packages at holiday time have aided in establishing public health projects that are saving thousands of lives annually. Where once there were but a few hospitals for the tuberculous, there are now more than six hundred hospitals and sanatoria where tuberculous patients are being cured; approximately one thousand open air schools restore undernourished and sickly children to health; nearly twelve thousand public health nurses work in homes and schools, in cities and remote communities, to educate children and adults in disease prevention; rest camps, preventoria and clinics all have been made available by the little Christmas Seal for the fight against tuberculosis. The Christmas Seal has accomplished only half of its purpose, but it will not cease its work until tuberculosis has reached the irreducible minimum. Christmas Seals are an investment and a Christmas gift. They safeguard the community health and they give a chance of health to the sufferer from tuberculosis. During December the postoffice department permits seals being placed on the address side of letters but they must be on the left-hand side of the envelope. This regulation is necessary in order to prevent interference with the cancellation of the postage stamp. After December these seals must be placed on the back of the envelope.

The memory of John Harris Duncan, President of the Missouri State Medical Association, 1896-1897, is surely fragrant among the elder members, and it is highly probable that quite a few will also gratefully remember him for his

valuable courses in physiology, in dermatology, in syphilology, variously delivered during the period 1875-1910, beginning at the University of Missouri and closing at the Medical School of Saint Louis University. To all these friends it will be a matter of interest to know that his widow, in loving memory of him, has furnished as a restful lounge a spacious room in the quarters of the Saint Louis Medical Society, and that this lounge is known as the John H. Duncan Room.

Desiring that a somewhat more sentient remembrance of this gracious gentleman be included in her donative and that, so far as possible, the Master of the Room be always in evidence, Mrs. Duncan has but recently hung upon the wall of the lounge a portrait in oil of Dr. Duncan, executed by Ivan Summers. Despite the fact that Mr. Summers was of necessity compelled to develop a likeness handicapped by a lack of personal knowledge of his subject and guided merely by photographs and the suggestions of relatives, the result is a bit of brilliant craftsmanship.

It is assumed that the long time friends of Dr. Duncan will take pleasure in viewing this excellent portrait when next in St. Louis, and that they will also embrace the favorable opportunity to browse through the quarters and the library of the Saint Louis Medical Society, which are becoming increasingly useful and interesting year by year.

OBITUARY

IN MEMORIAM*

Mr. President and Fellows of the Southeast Missouri Medical Association:

There is a reaper whose name is death,
And with his sickle keen,
He reaps the bearded grain at a breath,
And the flowers that grow between.

This hour has been solemnly dedicated to the sacred memory of our respected dead, who departed this life since our last meeting in October, 1928. It is fitting and proper that this Association pay due respect to the memory of its deceased members in a becoming tribute expressing the sentiment and feeling of this organization for its fellows who have fallen from the ranks. This is an obligation justly due from one honorable gentleman to the memory of another. This obligation has been sadly neglected in the past. "Expand the heart and you enlarge the intellect."

Death is no respecter of persons,—by its

*Delivered at the 53rd Annual Meeting of the Southeast Missouri Medical Association at Cape Girardeau, October 1-2, 1929.

final decree all mankind are brought to a common level from which there is no appeal. In the realm of death there is no rank nor station. The rich man relinquishes his millions and the pauper his rags. The true physician silently folds up the scroll of human life and ceases from his labor and unrequited toil. The mission of plucking the thorns from the pillow of suffering humanity is bequeathed to his fellows who are spared by the Grim Reaper and remain upon the field of human activity.

Whether the cup with sweet or bitter run,
The Wine of Life keeps oozing drop by drop
The leaves of Life keep falling one by one.

Since our last meeting six worthy physicians, honest and true, have answered the call and now rest in the silent embrace of the "Dark Mother."

One potent asset bearing on their existence in the Great Beyond is their record of faithful service to afflicted humanity. They filled their niche in human society, both professional and civic with credit.

To them the Book of Life is closed. No more the sharp rebuke from mortal lips can sting. No more the days of toil, the nights of care. No more can evil tidings sorrow bring, nor hopes be crushed or confidence betrayed.

The memory of these worthy men stimulates kindly thoughts and charitable impulses that should prevail and grow among us to a larger extent, as fraternal brethren and members of the noblest of all professions.

The tribute of Robert Louis Stevenson to the physician is deemed appropriate here: "There are men and classes of men, who stand above the common herd; the sailor; the shepherd not frequently; the artist rarely; the physician almost as a rule. He is the flower of our civilization and when the stage of man is done and only to be marveled at in history, he will be thought to have shared as little as any in the defects of the period and most nobly exhibited virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade. Discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments, and, what are more important, Herculean courage and cheerfulness."

Your committee appends herewith brief sketches of deceased colleagues:

John Andrew Shivers was born March 16, 1864, and died at his home in Malden, Missouri, June 12, 1928, aged 64. He graduated from the Memphis Hospital Medical College in the year 1886. He was a native of Tennessee. He practiced medicine in the City of Malden more than 40 years with credit to him-

self and honor to the noble profession to which he belonged.

Richard J. Owens died at his home, Mill-springs, Missouri, February 9, 1929, aged 76. He was born in Humphreys County, Tennessee, January 25, 1852. He graduated from the University of Tennessee College of Medicine in 1890. He was a member of the Christian Church. The verdict of his neighbors was "that he was a kind and noble character and contributed his effort and means to every movement for the betterment of church, school and other worth while enterprises."

John C. Faris was born in Pemiscot County, Missouri, December 1, 1879. He died April 1, 1929, aged 49 years, 4 months. His preliminary education was received in the public schools and the State University at Columbia, Missouri. He received his medical degree from Marion-Sims Medical College, St. Louis, in 1903. He was a member of his county society and the Missouri State Medical Association and a Fellow of the American Medical Association, and at one time held membership in the Southeast Missouri Medical Association. He specialized in diseases of the eye, ear, nose and throat. He was strictly ethical and always ready to help a fellow practitioner when called upon regardless of the fee. He practiced in Caruthersville for 26 years and was highly regarded by his professional brethren.

Albert Marshall died at his home in Bonne Terre, Missouri, May 12, 1929, aged about 50 years. He was born in Nevada City, California, July 18, 1879. He was educated in the Bonne Terre public schools and Washington University, St. Louis, where he obtained his medical degree in 1902. He was a member of St. Francois-Iron County Medical Society, the State Medical Association, and the Southeast Missouri Medical Association. Dr. Marshall "served his community faithfully and well as a physician and also as a citizen of vision and public spirit."

Thomas Lee Haney died at his home at Flat River, Missouri, July 22, 1929, aged about 59 years. He was born at Avon, Missouri, July 25, 1870. He received his medical degree from the Beaumont Hospital Medical College, St. Louis, in 1901. He was a member of his county medical society, the Missouri State Medical Association, and the Southeast Missouri Medical Association. He was a member of the Masonic Order and also the Odd Fellows. He was a member of the Christian Church at Flat River. He was physician to the National Lead Company at St. Francois. It was said of him by his professional brethren that "in the death of Dr. Haney, Missouri

loses a fine outstanding representative of the medical profession. His charity approached that of a university clinic. His rugged, kindly face had become a symbol of hope for the poor folk of all the Lead Belt. Deeply as his loss is felt by his own community, it is regretted no less by his fellows of the medical profession."

John Pettit Sebastian was born at Libertyville, Missouri, September 8, 1848. He died at the Arcadia Valley Hospital at Ironton, Missouri, January 29, 1929, aged 80 years, 5 months and 12 days. He received his preliminary education in the schools at Libertyville and the Bellevue Collegiate Institute at Caledonia, Missouri. He was graduated in medicine from the St. Louis Medical College (now Washington University School of Medicine) in the year 1870. He practiced his profession continuously in the vicinity where he was born, and where he died, covering a period of 59 years. He was a member of the Missouri State Medical Association, his county society, and the Southeast Missouri Medical Association. He was an ex-president of the Southeast Missouri Medical Association, and one of the oldest members in point of service. He was a loyal member and a faithful attendant, when circumstances would permit, and always tried to add something to the spice and spirit of every meeting which he attended. He voiced his tribute to his deceased brethren at the memorial services at Farmington, Missouri, last October. His was a generous soul and he could see the commendable traits of character in his fellows. His character, both professional and civic, was of the highest order. He entertained both professional and civic ideals, conceptions and sentiments, which strengthened him for the better discharge of duties devolving upon him in ordinary life. His character was as strong and substantial as the granite mountains that shadowed his feet throughout a long and useful career. "His life was gentle, and the elements so mixed in him that Nature might stand up and say to all the world, 'This was a man.'" He blazed his way through trackless woods and over towering hills, where highways never ran, to render service to suffering humanity. He was distinctly a country practitioner with a rugged constitution and a well balanced mind, "always up and doing and a heart for any fate." "A good name is rather to be chosen than great riches, and loving favor than silver and gold." Physicians of Dr. Sebastian's type are a distinct loss to the community in which they lived and to the medical profession as well.

William Frank Grinstead was born in Mississippi County, Missouri, October 8, 1853. He died in Cairo, Illinois, April 1, 1929, aged 75 years, 5 months, and 24 days. He was edu-

cated in the public schools and the Charleston Classical Academy, an educational institution of his home town. He received his medical education in the Missouri Medical College, St. Louis, (now Washington University School of Medicine) and the Medical Department of Vanderbilt University, Nashville, Tennessee. He graduated from Vanderbilt in 1877. He scored the highest grade made by any member of his class. He took postgraduate training in New York at intervals. He studied in the old St. George Hospital Medical School at London, England. A few years later, he availed himself of a course in surgery at the Royal Infirmary, Edinburgh, Scotland, a hospital of 850 beds, with teachers from the Medical Department of the University of Edinburgh. He served as intern in the City Hospital at Nashville, Tennessee. He served for a time in a drug store, to better familiarize himself with materia medica and the art of dispensing drugs. He was an enthusiastic supporter of organized medicine, and was a member of numerous medical societies where he loved to visit and exchange ideas regarding medical topics.

He was a member and an ex-president of the Illinois State Medical Association, a member of the Southern Illinois Medical Society, the Alexander County (Illinois) Medical Society, and the Southeast Missouri Medical Association, of which he was also an ex-president. He was a Fellow of the American Medical Association and was a constant attendant of its meetings. He was a Fellow of the American College of Surgeons. During the World War he was a loyal member of the district draft board and served as its chairman. He was also a traveler, and favored this Association with a paper at Farmington, recounting his travels in South America.

Old fashioned hospitality was a prominent trait of his character and he was noted for his famous Grinstead mixture, of which a thimbleful was a dose.

When Doctors meet in medical conventions
Inspired by the best intentions,
They paw the air and spread the bull,
And silently steal away for "just a thimble-ful."

Dr. Wm. F. Grinstead was an outstanding member of the Southeast Missouri Medical Association for more than 50 years. He labored unceasingly for the welfare, success and upbuilding of this Association throughout his entire professional life. He was an outstanding leader. He was a teacher of merit to his fellows and a living example as an ethical physician, richly endowed with the inborn qualities of a gentle character.

He respected his vocation and considered himself in duty bound to uphold it and claim

for it the respect it deserves. He cherished lofty ideals and achieved preeminent success in his chosen profession.

Patient industry, studious habits, and a splendid personality carried him into comfortable circumstances and a deserved celebrity among his fellows, and above all, it begat for him the love and esteem of his fellow citizens in general.

His fair name stands as a good example to show his loyal service to this organization. He died when at his best and when duty and service courted him to live. By his devotion and labor he brought fresh jewels to this Association through his timely papers, clinical specimens, guiding counsel and unselfish solicitude for its welfare and prosperity. He lived high above the fretting ambition of professional jealousy and the factional strife of local medical politics.

His unselfish efforts were always for the betterment of this Association and the profession he loved so well. He gave to it the best he had.

He was a divinely gifted man,
Whose life in low estate began.

His achievements in medicine and surgery were not attained without much labor and great personal sacrifice. He was left an orphan in his early childhood and by his own efforts shaped his destiny and can be truly classed as a self-made man.

Engraved upon his professional escutcheon was the old motto, "There is no excellence without great labor." He maintained a high standard of professional and civic honor in his daily life. His loyalty to his friends is cherished by them as a bright spot in the course of human existence. The guiding star of his ambition was service to his clientele.

His personal platform enunciated by his own tongue, was,—“Ethical, scientific service, in medicine and surgery.”

Flesh dies, but the soul knows no death. Dr. Grinstead's splendid physique resisted the Black Robed Angel for several months. He suffered intensely before yielding to the inevitable, but finally there came the—

Twilight and evening bell,
And after that the dark!

and a long and useful career was brought to a finish.

His ashes now rest in peaceful slumber in a quiet spot near Thebes, Illinois, selected by himself as the last resting place for his mortal remains. Peace be unto his soul.

G. W. VINYARD, Chairman,
Committee on Necrology.

CASSIUS MERRITT KETCHAM, M.D.

Dr. Cassius M. Ketcham, Carthage, a graduate of George Washington University Medical School, Washington, D. C., 1893, died at his home October 21, 1929, of Bright's disease, aged 66. Although he continued to practice until about ten days before his death, Dr. Ketcham had not been well for the last six years when he underwent an operation for the removal of one kidney. He was compelled to go to bed on October 9 and was bedfast until he died.

He was prominently identified with the city's civic development. At various times he served as county physician for the eastern district of Jasper County, and gave his time and energy to caring for the county's unfortunates. Kindliness was one of his outstanding characteristics. Some thirty years ago he served on the City Council of Carthage, and it was largely through his efforts that the city obtained the initial plant of the present Carthage Water and Electric Company.

Dr. Ketcham was born September 15, 1863, at Goodland, Indiana. In 1864 his family moved to Illinois where he lived until 1887, when he came to Missouri and became associated with his brother, the late D. E. Ketcham, who was a druggist at Golden City. In 1888 he went to Washington, D. C., to study medicine. In 1892 he was married to Miss Myrtle Johnson, of Albert Lea, Minnesota, who died seven years later. Their one son, W. Merritt, is now a physician in Kansas City. In 1912 Dr. Ketcham married Dr. Elizabeth L. Hall, Carthage. To this union one daughter, Betty, was born. Funeral services were conducted from the home to Park Cemetery by the Reverend Walter F. Bradley, pastor of the First Presbyterian Church, of which Dr. Ketcham was a member, and Reverend James G. McCaughtry, pastor of the Aurora Presbyterian Church. Honorary pallbearers were: Drs. S. X. Cordonnier, C. B. Taylor, R. W. Webster, F. S. Webster and David Wise, of Carthage; Dr. A. B. Clark, Joplin; Dr. R. F. Cheatham, Diamond.

JOHN SINCLAIR PARRISH, M.D.

Dr. John S. Parrish, Pleasant Green, a graduate of Beaumont Hospital Medical College, St. Louis, 1891, died September 21, 1929, of chronic endocarditis and myocarditis, aged 66.

Dr. Parrish was a member of the Cooper County Medical Society. Besides being a Doctor of Medicine, he was also a graduate in pharmacy. He took an active interest in public affairs and was president of a bank.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1929

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Madison County Medical Society, December 15, 1928.

Ralls County Medical Society, December 17, 1928.

Chariton County Medical Society, December 28, 1928.

Mercer County Medical Society, January 2, 1929.

Camden County Medical Society, January 11, 1929.

Benton County Medical Society, February 13, 1929.

Dent County Medical Society, April 3, 1929.

Marion County Medical Society, April 8, 1929.

Platte County Medical Society, April 11, 1929.

Atchison County Medical Society, April 22, 1929.

Christian County Medical Society, April 24, 1929.

St. Francois-Iron County Medical Society, April 24, 1929.

Schuyler County Medical Society, May 3, 1929.

Shelby County Medical Society, May 6, 1929.

Callaway County Medical Society, May 10, 1929.

Lafayette County Medical Society, May 15, 1929.

Scotland County Medical Society, May 22, 1929.

Henry County Medical Society, June 20, 1929.

Grundy County Medical Society, July 15, 1929.

Macon County Medical Society, July 15, 1929.

Wright-Douglas County Medical Society, August 6, 1929.

Caldwell County Medical Society, September 9, 1929.

CALLAWAY COUNTY MEDICAL SOCIETY

Dr. Martin Yates, Fulton, dean of the medical profession of Callaway County, was the guest of honor at a supper given by the Callaway County Medical Society at the Jameson-Muzzy Cabin, north-east of Fulton, Thursday evening, October 17, 1929. Dr. Yates has been practicing in Callaway County for fifty-three years and has served as secretary of the Society for thirty-five years, with the exception of one year when he was president. Although the Doctor is seventy-seven years of age, he is still actively engaged in his profession and drives his own car. The supper which evidently appealed to the appetites of the guests was served by Roy Muzzy, Robert S. Christian and Hays Hope.

Dr. R. N. Crews, Fulton, president, acted as toastmaster, and called upon all the physicians for short talks. Each one spoke in the highest esteem of Dr. Yates, stressing not only his medical ability but the good he has accomplished as a citizen in relation to the general welfare of the county.

At the close of the program Dr. Yates responded with a short talk, dwelling particularly upon the revolution that has been made in the modes of transportation during the period of more than half a century that he has served the people of Callaway county, and that as a result of modern methods of travel physicians are able to accomplish much more. In the early days of his practice, Dr. Yates said, a doctor making a call in cold, bad weather would have to ride horseback, wrap up in blankets, plow through mud, and then nearly freeze to death in going only a short distance. Now with concrete roads and a car equipped with a heater, the physician is enabled to respond to a call from a patient in much less time and with much less discomfort.

The following were present: Members, Drs. C. H. Christian, R. N. Crews, A. D. Ferguson, R. G. Hall, G. D. McCall and H. I. Owen, of Fulton; Dr. W. H. Williamson, Mokane; Dr. E. McD. Rusk, New Bloomfield. Visitors, Drs. J. Frank Harrison, J. G. Moore and Ned R. Rodes, of Mexico; Drs. C. M. Sneed and F. G. Nifong, of Columbia; Dr. A. R. McComas, Sturgeon; Drs. M. R. Aldridge, W. A. Clark and J. G. Bruce, of Jefferson City; Dr. E. L. Hume, New Bloomfield; Drs. A. W. Tandy and V. A. Johnston.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society held its October meeting at the Snapp Hotel, Excelsior Springs, October 24, 1929. Beginning with dinner, some twenty-five members, their wives and guests were partakers of the genuinely "homey" feast. With us were Dr. and Mrs. Ralph W. Holbrook, of Kansas City, Dr. and Mrs. Emmett P. North, of St. Louis, and Dr. and Mrs. Francis M. McCallum, of Kansas City. Herein was represented the State Board of Health, as well as the spirit of organized, honorable practice of medicine in Missouri. Dr. McCallum is a member of the State Board of Health, Dr. Holbrook is president of the Jackson County Medical Society and Dr. North is a past president of the State Medical Association. Their charming wives, with the Clay County ladies, made the meeting a very happy one.

Dr. Holbrook and Dr. North devoted something like an hour to talks on medical economics—the decent conduct of professional men and the unhappy experiences with charlatans masquerading as doctors whose sole quest is revenue only from the gullible public. These talks were very appropriate in the face of the hotbed of quackery at Missouri's greatest health resort. Education of the public was advocated earnestly by the experienced fighters for honesty in treatment of the sick and afflicted.

Dr. McCallum, for the State Board of Health, pledged cooperation in any movement calculated to improve the medical atmosphere in the state.

Dr. Holbrook also conducted a most profitable postgraduate hour in the scientific program, his subject being "The Colon." He used the stereopticon in illustrating certain points of pathology and treatment. He condemned routine massage, the much overdone irrigations of the quackish exploiter and explained the dangers of these practices. I wish I had space to give the lecture in full, for the benefit of those who did not find time to attend the meeting.

Our interest was never better. With the exception of three, all our members have paid dues for 1929. The next meeting will be held in Liberty, December 5, 1929, so as not to interfere with the holiday season. Members will please note the change in the time of meeting and come in promptly for the election of officers for 1930.

J. J. GAINES, M.D., Secretary.

GASCONADE-MARIES-OSAGE COUNTY MEDICAL SOCIETY

The Gasconade-Maries-Osage County Medical Society met at Cooper Hill, October 23, 1929, at two p. m., with seven members and two guests present.

Dr. H. S. Gove, Linn, presented an interesting paper on "The Public Health Aspect of Epidemic Meningitis as Observed in a Recent Epidemic in Osage County."

The histories of several clinical cases were read and discussed.

M. E. SPURGEON, M.D., Secretary.

HOWELL-OREGON-TEXAS COUNTY MEDICAL SOCIETY

The Howell-Oregon-Texas County Medical Society met in regular session at West Plains, October 31, 1929, in the Arcade Hotel. The following members were in attendance: Drs. J. W. Bingham, R. E. Hogan, P. D. Gum, R. A. Sparks, A. H. Thornburgh and Lee E. Toney, of West Plains; Dr. L. M. Edens, Cabool; Dr. D. D. Cox, Pomona; Dr. J. D. Black, South Fork; Dr. H. E. Pace, Gainesville. After a pleasant social hour around the banquet table, the meeting was called to order at 7:30 p. m. by the president, Dr. L. M. Edens, Cabool.

There was no scientific program but an hour was spent in discussing matters of interest to the members. The election of officers for the year 1930 was then held, and resulted in the following being elected: President, Dr. Lee E. Toney, West Plains; vice president, Dr. D. D. Cox, Pomona; secretary-treasurer, Dr. A. H. Thornburgh, West Plains; delegates, Dr. L. M. Edens, Cabool; Dr. P. D. Gum, West Plains.

The meeting adjourned to meet in Thayer, Thursday, December 19, 1929.

A. H. THORNBURGH, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met in regular session October 15, 1929, at 8:00 p. m., in the Joplin Y. M. C. A. rooms with Dr. E. D. Hatcher, Carthage, in the chair. The minutes of the last meeting were read and approved. Eleven members and nine visitors were present.

Dr. Burleigh E. De Tar, Joplin, applied for membership by transfer from the Ottawa County (Oklahoma) Medical Society. On motion, duly seconded and carried, Dr. De Tar was admitted to membership.

Several cases were reported and discussed.

A paper was read by Dr. De Tar on "Trichomonas Vaginalis" and was freely discussed.

Meeting of October 22, 1929

The Society met at Joplin, October 22, 1929, at 8:00 p. m., with Dr. Roy E. Myers, Joplin, vice president, presiding. The minutes of the last meeting were read and approved. There were sixteen members and five visitors present.

Dr. Leroy W. Baxter, Joplin, gave an interesting

talk on "Urologic Diagnosis." He presented several case reports on renal calculi with X-ray findings, and dwelt thoroughly on the differential diagnosis of this condition. His subject was thoroughly discussed.

Meeting of October 29, 1929

The Society met at Joplin, October 29, 1929, at 8:00 p. m. Dr. E. D. Hatcher, Carthage, president, presided. The minutes of the last meeting were read and approved. Eighteen members and three visitors were present.

The application for membership of Dr. David Wise, Carthage, was read and referred to the board of censors.

Dr. S. H. Miller, Joplin, reported a case of a newborn child with supernumerary digits.

Dr. A. B. Clark, Joplin, told of a case of septic infection from an abscessed tooth resulting in the death of the patient.

Dr. Otto Blanke, Joplin, read a very interesting paper on "The Medical Gallbladder." His paper was discussed and received much favorable comment.

Meeting of November 5, 1929

The Society held its regular meeting at Joplin, November 5, 1929, at 8:00 p. m., the president, Dr. E. D. Hatcher, Carthage, in the chair. Thirty members and twenty-five visitors were present. The minutes of the last meeting were read and approved.

The board of censors reported favorably on the application of Dr. David Wise, Carthage, and he was unanimously elected to membership.

Dr. E. M. Medlar, of the Hageman Laboratories, Mount McGregor, N. Y., addressed the Society on "The Leukocytes in Health and Disease." Dr. Medlar, having spent several years in research work with leukocytes, stressed the point that leukocytosis is not caused by infection but by damaged tissue.

Dr. Harry L. Church, Pittsburg, Kansas, read a paper on "A New Method of Gastrostomy."

Dr. Howard E. Marchbanks, Pittsburg, Kansas, discussed a series of medical cases with the autopsy findings.

At a late hour the meeting adjourned.

H. L. WILBUR, M.D., Secretary.

LINN COUNTY MEDICAL SOCIETY

The Linn County Medical Society met conjointly with the Livingston, Chariton and Macon County Medical Societies at Brookfield, October 22, 1929, in the Elks' Club. There was a good attendance, the following being present: Drs. S. T. Brownfield, J. Lane Evans, Robt. Haley, C. E. Jenkins, J. H. Lucas, E. D. Standly, of Brookfield; Drs. R. M. Cater, W. W. Ellis, P. L. Patrick, and Ola Putman, of Marcelline; Dr. F. W. Burke, Laclede; Dr. L. O. Home, Linneus; Dr. E. F. Weir, Meadville. Our guests were: Drs. Horace S. Dowell and R. J. Brennan, of Chillicothe; Drs. R. M. Fellows, W. W. Fellows and G. W. Hawkins, of Salisbury; Dr. R. P. Price, Triplet; Dr. C. D. Stratton, Rothville; Dr. A. L. Cambre and Dr. Turner, of Atlanta.

Dr. Horace S. Dowell, Chillicothe, gave a talk on "Facing the Future in Medicine."

Dr. A. L. Cambre, Atlanta, read a paper on "Multiple Serositis in Childhood."

"The Treatment of Pulmonary Tuberculosis in the Home," was discussed by Drs. R. M. Fellows and W. W. Fellows, of Salisbury.

"Acute Osteomyelitis," was the subject of a paper read by Dr. Ola Putman, Marcelline.

All of the papers were fully discussed.

The next meeting will be held at Marceline some time in December.

OLA PUTMAN, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY

The Nodaway County Medical Society met in regular session Friday, November 8, 1929, at 7:30 p. m., in the offices of the Nodaway County Health Department, Maryville. The meeting was called to order by the acting president, Dr. L. E. Dean, Maryville, with the following members present: Drs. C. T. Bell, K. C. Cummins, L. E. Dean, C. P. Fryer, R. C. Person, H. S. Rowlett, and William Wallis, Jr., of Maryville; Dr. W. M. Hindman, Burlington Junction; Dr. Charles D. Humbert, Barnard; Dr. C. W. Kirk, Hopkins; Dr. J. A. Phipps, Elmo. Dr. Val B. Satterfield, St. Louis, Drs. Paul F. Stookey and C. R. Ferris, Kansas City, were present through the courtesy of the Postgraduate Committee of the State Association. Drs. Bridgman and D. A. Sargent, Hopkins, and Dr. Jack Rowlett, Maryville, were also guests.

The minutes of the regular meeting of May 10 were read and approved. Since that date the Society has lost an ex-president and a valued member by death, Dr. Frank C. Wallis, Maryville. The Society attended Dr. Wallis' funeral on September 5 in a body. The following note of appreciation from Dr. Wallis' sister was read by the secretary.

September 6, 1929.

Nodaway County Medical Society.

Dear Friends:

My father, brother, and myself appreciated the expression of your sympathy during our very recent sorrow. The flowers were beautiful and we thank you all.

Sincerely,

(Signed) AUGUSTA WALLIS ALLENDER.

A committee composed of Drs. C. T. Bell, C. V. Martin, and R. C. Person, of Maryville, was appointed to draft resolutions of respect in memory of Dr. Wallis.

Dr. Val B. Satterfield, St. Louis, read an exceptionally scholarly paper on "The Basis of Differential Diagnosis of Mental Disease." He presented a review of all the late aspects of psychiatry and covered his field very thoroughly but concisely. The subjects of neurasthenia, the neuroses, hypochondriasis, vagotonia, and tics and habit spasms, were introduced by Drs. C. T. Bell and C. D. Humbert, of Maryville, and Dr. Satterfield's discussion of them was invited. Dr. Satterfield had, during the afternoon, seen several neurological and psychotic cases in consultation with our members.

Dr. Paul F. Stookey, Kansas City, gave an illustrated talk on "Acute Epidemic Meningitis," paying special attention to the diagnosis and treatment. Dr. Stookey has had a very extensive experience with meningococcic meningitis and gave his audience the full benefit of his contact with his cases.

Dr. C. R. Ferris, Kansas City, gave a thorough review of "The Serology of Epidemic Meningitis."

There were numerous warm expressions of the Society's appreciation of addresses by these able speakers.

The meeting adjourned at 11:15 p. m.

CHAS. D. HUMBERT, M.D., Secretary.

ST. LOUIS COUNTY MEDICAL SOCIETY

The St. Louis County Medical Society met in the First Congregational Church of Webster Groves, October 9, 1929. The meeting was called to order

by the President, Dr. A. W. Westrup, Webster Groves, at 3:20 p. m. with the following members present: Drs. I. M. Blanchard, C. C. Irick, W. F. O'Malley and A. W. Westrup, of Webster Groves; Drs. E. O. Breckenridge and E. E. Tremain, of Maplewood; Drs. C. P. Dyer, Garnett Jones, L. C. Obrock and F. J. Peterson, of St. Louis; Dr. F. P. Knabb, Valley Park; Dr. J. H. Armstrong, Kirkwood; Dr. E. L. Fredericks, Manchester. Visitors: Dr. Smith, of St. Louis; Dr. Frank Sandfos, Ballwin, Missouri.

Dr. J. H. Armstrong addressed the Society on "My Impressions of the Treatment of Tuberculosis in Colorado This Summer." This subject proved very interesting and instructive and was discussed by Drs. Garnett Jones, E. L. Fredericks, E. O. Breckenridge, and E. E. Tremain.

Dr. Westrup reported on the progress of the new St. Louis County Hospital.

E. E. TREMAIN, M.D., Secretary.

ST. FRANCOIS-IRON COUNTY MEDICAL SOCIETY

The St. Francois-Iron County Medical Society met in the office of Dr. Dailey Appleberry, Rivermines, October 29, 1929. There were fifteen members present.

The scientific program was furnished by Drs. Norman Tobias and August A. Werner, of St. Louis, by courtesy of the Postgraduate Committee of the State Association.

Dr. Tobias spoke on "Leprosy" and illustrated his subject with lantern slides.

Dr. Warner addressed the members on "Thyroid Dysfunction and Treatment," illustrated with lantern slides.

Both subjects were fully discussed.

Dr. Tobias also conducted a round table discussion on the treatment of leues.

RALF HANKS, M.D., Secretary.

SOUTHEAST MISSOURI MEDICAL ASSOCIATION

The Southeast Missouri Medical Association held its fifty-third annual meeting at the Marquette Hotel, Cape Girardeau, Tuesday and Wednesday, October 1 and 2, 1929. There was an estimated attendance of over two hundred and fifty physicians.

On Tuesday evening the members and their wives were guests of the Cape Girardeau physicians at a six o'clock dinner in the Marquette dining hall and later attended a show at the Broadway Theater, both of which were much appreciated as recreational features of the first day.

On Wednesday afternoon fitting memorial exercises were offered in respect to deceased members by Dr. G. W. Vinyard, Cape Girardeau. See page 602.

The scientific sessions were composed of papers and discussions on the following subjects:

"Carcinoma of Cervix," Dr. M. L. Cone, Campbell.

"Focal Infection From a Dental Standpoint," Dr. J. A. Rapp, Cape Girardeau.

"Allergy," Dr. C. E. Fallet, De Soto.

"Diagnosis of Pulmonary Tuberculosis," Dr. Sam A. Snider, Kansas City.

"Relation of Pulmonary Infections to Upper Respiratory Infections," Dr. Millard F. Arbuckle, St. Louis.

"Report of Cases," Dr. G. B. Schulz, Cape Girardeau.

"Hyperthyroidism; Its Treatment and Management," Dr. O. L. Seabaugh, Cape Girardeau.

"Significance of Pain in Chest and Thorax," Dr. A. H. Hamel, St. Louis.

"Fracture of Patella; Surgical Treatment," Dr. J. D. Porterfield, Jr., Cape Girardeau.

"Ambulatory Treatment of Rectal Diseases," Dr. J. Lee Harwell, Poplar Bluff.

"Undulant Fever," Dr. G. S. Cannon, Farnfeldt.

In the Symposium on Obstetrics the following papers were read:

"Prenatal Care," Dr. Paul Baldwin, Kennett.

"Natal Care," Dr. John D. Van Cleve, Malden.

"Postnatal Care," Dr. E. J. Nienstedt, Blodgett.

"Management of Pregnancy," Dr. N. F. Chostner, Cape Girardeau.

"Some Obstetrical Obstacles," Dr. R. C. Kitchell, Bismarck.

Intensive interest was manifested in the discussion of the various subjects and many voiced the sentiment that this was an unusually good meeting.

Poplar Bluff was selected as the meeting place for 1930.

Officers elected for the ensuing year were: President, Dr. M. H. Shelby, Cape Girardeau; recording secretary, Dr. W. S. Love, Charleston; corresponding secretary, Dr. E. J. Nienstedt, Blodgett; treasurer, Dr. Paul Baldwin, Kennett.

Cape Girardeau has won a warm place in the hearts of all in attendance because of its growing beauty and the hospitality of its citizens.

E. J. NIENSTEDT, M.D.,
Corresponding Secretary.

TRUTH ABOUT MEDICINES

AMPOULES OF PITOCIN.—An aqueous solution containing the oxytocic principle of the posterior lobe of the pituitary gland (alphahypophamine) containing less than 0.5 unit of pressor activity per cc. It is standardized by the U. S. P. method for pituitary, each cc. containing 10 International units. This product is used to stimulate uterine contractions for obstetric purposes. It is marketed in 1 cc. ampules. Parke, Davis & Co., Detroit. (Jour. A. M. A., July 13, 1929, p. 117.)

RABIES VACCINE (Phenolized).—An antirabic vaccine (New and Nonofficial Remedies, 1929, p. 356) prepared according to the general method of David Semple (phenol killed). It is marketed in packages of 14 vials, each containing 3 cc., and in packages of 21 vials, each containing 3 cc. Terrell's Laboratories, Fort Worth, Texas. (Jour. A. M. A., July 27, 1929, p. 283.)

PROPAGANDA FOR REFORM

CORAMINE—Ciba.—The Council on Pharmacy and Chemistry publishes a preliminary report on Coramine—Ciba. The product is stated to be pyridine—carbonic acid diethylamide, proposed for use as a circulatory stimulus in cardiac failure, surgical shock, narcotic poisoning and respiratory failure. The product is marketed as Coramine Liquid, a 25 per cent solution for oral, subcutaneous, intramuscular and intravenous administration. The A. M. A. Chemical Laboratory confirmed in a general way the chemical claims. Eleven reprints were submitted by the Ciba Co., Inc., in support of the

claims made; four of these referred to animal experiments, six to clinical results and one to both. In addition, the Council's referee examined a number of reports not submitted by the firm and reported the tenor of all to be favorable. The experiments on animals are not impressive, in view of the very large doses used to produce effects in animals. It is probable, however, that with a drug of this character observations on man would be most convincing, if they could be thoroughly controlled so as to exclude spontaneous changes. It is doubtful whether this is the case in the present instance, and while the clinical reports are generally favorable, they are not decisive. The Council voted to postpone action on Coramine—Ciba to await further experimental and clinical evidence which may establish its usefulness and to publish its report bringing out the experimental status of the product. (Jour. A. M. A., June 1, 1929, p. 1837.)

ELIXIR KACYAN McNEIL AND TABLETS KACYAN McNEIL NOT ACCEPTABLE FOR N. N. R.—The Council on Pharmacy and Chemistry reports that it decided not to admit potassium sulphocyanate to New and Nonofficial Remedies because the evidence for its therapeutic value is inconclusive. However, in view of reports in which reduction in pressure is clinically desirable, the Council holds that further consideration should be given the drug and voted to publish this report, stating the limitations of therapy with potassium sulphocyanate, namely: that the evidence for its value is far from conclusive; that in many patients the production of lowered pressure does more harm than good; and that its use is contraindicated in acute inflammation of all types, in nephritis and in marked renal insufficiency. The Council also reports that Elixir Kacyan McNeil and Tablets Kacyan McNeil are the proprietary names under which Robert McNeil, Philadelphia, markets an elixir and tablets of potassium sulphocyanate and that these are unacceptable for New and Nonofficial Remedies because the evidence for the value of potassium sulphocyanate is inconclusive and because the marketing of this drug under a proprietary name is contrary to the interests of rational therapy. (Jour. A. M. A., June 1, 1929, p. 1838.)

THALLIUM POISONING.—Three children died recently in London from poisoning by thallium acetate administered for ringworm of the scalp. This is an additional indication of the growing importance of thallium compounds as a dangerous poison. The first therapeutic use of thallium was to check sweating. Its action in causing a loosening and falling out of the hair was a "by-product" and most of our information about its other and more general poisonous effects in man has been obtained from its employment in epilation. Thallium is closely related chemically to mercury and lead. Although they appear earlier, the symptoms of chronic thallium poisoning are more like those produced by arsenic than by these other metals. (Jour. A. M. A., June 1, 1929, p. 1865.)

IRRADIATED ERGOSTEROL.—Lest there still remain any misunderstanding, it should be recalled that the therapeutic virtues of cod liver oil are by no means to be identified with irradiated ergosterol; for the liver oil is rich in vitamin A, which is in no way identical with the antirachitic properties of the irradiated ergosterol. The publicly announced statements that solutions of irradiated ergosterol repre-

sent the long desired "synthetic cod liver oil" are utterly misleading except as the vitamin D component is concerned. Irradiated ergosterol cannot replace butter—a common source of vitamin A—though it may supplement the valuable milk fat. When a highly potent substance such as irradiated ergosterol becomes readily available, it behooves us to consider carefully whether a danger of overdosage exists. While there appears to be a liberal range between a physiologically beneficent intake and a possibly injurious overdosage, there can no longer be much doubt that massive doses of irradiated ergosterol may result in considerable impairment of nutrition, loss of weight, pronounced hypercalcemia, and abnormal calcium deposits in certain tissues and organs. Investigators in the U. S. Public Health Service state that irradiated ergosterol is no doubt a useful drug and one endowed with great potency, but not without possible harm in the hands of the unsuspecting. Probably this is true also, the investigators add, of the haphazard consumption of food-stuffs that have been subjected to the action of ultraviolet rays. (Jour. A. M. A., June 15, 1929, p. 2023.)

YEAST AND PUFFERY.—The British Medical Journal has called attention to some "highly objectionable advertisements of a proprietary brand of yeast" that were appearing in American and Canadian periodicals. These advertisements are stated to have been of the testimonial type and purported to be signed by European or American medical men. While not mentioned by name, it seems quite obvious that the British Medical Journal referred to the blatant series of advertisements that the "Fleischmann's Yeast" concern has been running recently. As a result of the editorial comment, a well known London physician has written to the British Medical Journal that he was asked to write a testimonial extolling the virtues of yeast, this testimonial to appear with his name and photograph in magazines and newspapers and was offered the sum of one hundred fifty pounds (\$750). The physician did not accept the offer of the advertising agent. The following American physicians' names (and pictures) have been used by the Fleischmann people in their recent advertising campaign: "Dean H. H. Rusby, M.D., Professor of Physiology, College of Pharmacy, Columbia University." "Dr. George Parrish, well known Health Officer of Los Angeles." "Dr. Ira L. Hill, prominent New York physician and abdominal surgeon." (Jour. A. M. A., June 15, 1929, p. 2025.)

PHARMACEUTIC PREPARATIONS OF EPHEDRA NOT ACCEPTABLE FOR N. N. R.—The Council on Pharmacy and Chemistry points out that during recent years much attention has been given to the alkaloid ephedrine and that the free base, ephedrine, and two salts, ephedrine hydrochloride and ephedrine sulphate, have been admitted to New and Nonofficial Remedies. Further, that the alkaloid ephedrine is one of the alkaloids contained in the drug ephedra (*Ephedra equisetina*, *ma huang*), which contains also an indefinite and variable mixture of bases related to ephedrine but differing quantitatively and possibly qualitatively in their actions. A chemical assay of pharmaceutical preparations of ephedra, has, therefore, no value as a measure of their therapeutic potency, having no bearing on therapeutic activity. The Council holds the use of unstandardized preparations of a potent drug to be a step backward,

and is distinctly undesirable when standardized preparations (in this case the isolated alkaloid ephedrine and its salts) are practically available. The Council therefore decided that pharmaceutical preparations of ephedra must be considered unacceptable until their therapeutic value in comparison to ephedrine has been established. (Jour. A. M. A., June 22, 1929, p. 2101.)

BACTERIOPHAGE AS A THERAPEUTIC AGENCY.—The bacteriophage has been slow to gain acceptance as a possible agent in the warfare against infection. Recent investigations show the many difficulties connected with the successful use of bacteriophage and also the advantages which they have over other agents. While bacteriophage preparations give promise of eventually becoming valuable additions to the physician's armamentarium, it should be remembered that the whole subject is still in the experimental stage. When vaccine therapy was new and in the ascendancy, manufacturers offered specific vaccines for almost every human ailment and "mixed vaccines" of startling complexity. The Council on Pharmacy and Chemistry not only rejected most vaccine mixtures but has during recent years been obliged to omit a considerable number of simple vaccines because the results obtained with them did not measure up to the evidence which investigators supplied in the height of enthusiasm. Manufacturers are already marketing bacteriophage preparations, simple and mixed. Warrant for the use of such mixtures has not so far become evident and the Council on Pharmacy and Chemistry has postponed the acceptance of simple preparations to await further evidence in favor of their usefulness. (Jour. A. M. A., July 13, 1929, p. 121.)

MORE DEATHS FROM THALLIUM.—Three more deaths from thallium poisoning are reported. Three boys, aged ten, eleven and twelve years respectively received successive doses of thallium acetate for ringworm. Although influenza had left one of them apathetic and the other two were mentally dull since birth and all three were undernourished the dose of 0.008 Gm. per Kg. of body weight was either given or its administration begun. The effort to give the calculated amount in divided doses caused death as have other similar attempts. Only one dose should be given and for children infirm in any way, this should be less than the usual amount. (Jour. A. M. A., July 13, 1929, p. 122.)

MORE MISBRANDED NOSTRUMS.—The following products have been the subject of prosecution by the Food, Drug and Insecticide Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Rheu-Salic Tablets (The Waterbury Chemical Co.), containing acetphenetidin and magnesium salicylate in amounts less than declared. Dynell Water (The Dynell Spring Water Co.), containing no ingredient capable of producing the effects claimed. Vibunol Johnson (Johnson's Female Regulator) (E. B. Goico), a water-alcohol solution of drug extracts together with sugar. Migratone Anti-Rheumatic Tablets (The Waterbury Chemical Co.), containing salicylic acid in amount less than claimed. Methalgine Comp. Capsules (The Waterbury Chemical Co.) containing morphine sulphate, acetanilide, acetphenetidin and sodium salicylate in amounts less than claimed. (Jour. A. M. A., July 13, 1929, p. 138.)

BOOK REVIEWS

LABORATORY MANUAL OF THE MASSACHUSETTS GENERAL HOSPITAL. By Roy R. Wheeler, M.D., and F. T. Hunter, M.D. Second edition, revised. Leather, 101 pages. Philadelphia: Lea and Febiger.

This small pocket sized book of 101 pages was originally intended as an outline of laboratory work done by the interns in the Massachusetts General Hospital but soon became of interest to students and practitioners. The procedures described are standard ones actually in use in the Massachusetts General Hospital. The second edition has been carefully checked and somewhat revised with the introduction of some new material.

There are six chapters on the following subjects: Laboratory Work Indicated; Examination of Specimens; Collection of Specimens; Special Diagnosis Procedures; Therapeutic Technique; Prophylactic Measures. The subjects are treated in a clear and concise manner.

This book is a valuable guide for the physician as well as for the laboratory worker. E. A. B.

THE HISTORY OF HEMOSTASIS. By Samuel Clark Harvey, M.D., Professor of Surgery, Yale University; Surgeon in Chief, New Haven Hospital. With 19 illustrations. New York: Paul B. Hoeber, Inc. 1929. Price \$1.50.

The author has chosen as his theme the subject of hemostasis and followed it through the vicissitudes of time. The control of pain, bleeding and infection have made possible the progress of surgery. Of these hemostasis has been a matter of slow growth and has its origins in primitive times.

The author recalls some of the methods and medicaments used by the Egyptians, the natives of India, the Chinese and the Greeks. Styptics, elevation and compression, tamponage, bandage and infrequently cautery were the earliest methods used to control hemorrhage. There is apparently some doubt as to who first used the ligature. Galen was familiar with ligation in accidental wounds but he did not mention its use in amputations. After Galen darkness ruled, surgery became an inferior branch of medicine and the cautery largely replaced the knife. Cauterization was the common procedure, refined in its cruelty and explicit in its application.

The chapter on "Paré and the Ligature" is a speedy review of this gifted man's contribution to hemostasis and amputation. Compression over the great arterial trunks and the application of the tourniquet, attributed to Morel, made it possible for the ligature to become the method of choice in amputations. In the 18th century tourniquet and ligature came into their own and there was no longer any question as to the desirability of amputation above the diseased area.

The dental forceps was the progenitor of the artery forceps and probably antedates written history. Paré gives the first description of the application of the forceps to blood vessels. From this developed the modern hemostat which plays such a large part in surgery.

This little book is written by one who surely loves his subject and is thoroughly at home in it. The author's style is unimpeachable. In this day of loose and slovenly English it is a real treat to read a book that is so well done. L. S.

SPINAL ANESTHESIA. (Subarachnoid Radicular Conduction Block) Principles and Technique. By Charles H. Evans, M.D., Clinical Assistant, N. Y. Postgraduate School and Hospital, etc. Introduction by W. Wayne Babcock, M.D., F.A.C.S. Foreword by Charles Gordon Heyd, M.D., F.A.C.S. 41 illustrations, 3 in color and one folding colored plate. New York: Paul B. Hoeber, Inc. 1929. Price \$5.50.

The simplicity or the standardization of a technic which can be applied with greater safety should make this mode of anesthesia invaluable when applied in those proper cases so thoroughly and clearly advocated in this work. In reviewing the well formulated contribution of Dr. Evans, its thoroughness and the exact details of its application are especially noticeable. At the same time he has laid great stress upon its contraindications.

The crystals of neocaine the author has shown have been successful and the opinion prevails that they are preferable and the proper selection in the stated cases.

It is a pleasure to review a work of such importance and written with conservatism based upon personal experience. J. F. C.

HISTORY OF BLOCKLEY. A history of the Philadelphia General Hospital from its inception, 1731-1928. Compiled by John Welsh Croskey, M.D., Philadelphia, Pa. Illustrated with 15 half-tone plates. Philadelphia: F. A. Davis Company. 1929. Price \$10.00.

Although essentially of local and topical interest, this work is an excellent cross-sectional view of the whole history of American clinical teaching. For this reason it is of much interest to every student of the history of medicine. The wit and humor of Da Costa's chapter are unique and will give the reader an hour's entertainment.

The old introductory essay by D. Hayes Agnew (died 1892), written in the present tense, should be accurately and conspicuously dated to save the casual reader some confusion.

As a book this volume is beautiful. The press work and binding are better than average and deserve much commendation. C. D. H.

OLD AGE, THE MAJOR INVOLUTION. The Physiology and Pathology of the Aging Process. By Aldred Scott Warthin, Ph.D., M.D., LL.D., Professor of Pathology and Director of the Pathological Laboratories in the University of Michigan, Ann Arbor. With 29 illustrations. New York: Paul B. Hoeber, Inc. 1929. Price \$3.00.

This monograph, the nucleus of which was a paper read before the New York Academy of Medicine, is the author's conception of the unity of the involution processes as essentially physiologic in nature and that old age should be considered as a normal major involution and not as a pathological process.

The presentation of a rational, workable philosophy of life is put forth in such a clear-cut and concise manner that it does not require much thought to fall in line with the author's philosophy. Dr. Warthin treats his subject-matter in definite chronological order: first, the period of growth or evolution; next, the period of maturity, and then old age, the period of retrogression or the major involution. He likens old age to the physiological and pathological changes of the normal tissue cell. Growth

and retrogression go hand in hand. They are predetermined in the cells of the given tissue and so are intrinsic or inherent. The changes of the cell are parenchymatous atrophy and degeneration with vascular obliteration and sclerosis. Tissue changes of old age are the same. They represent the passing of parts of the organism that have accomplished their purpose and become useless. His philosophy that old age cannot be deferred or that rejuvenescence is impossible is food for thought.

This excellent working philosophy of life,—which is the story of a living multicellular organism, a chemical, physiological machine, transforming, storing and releasing energy,—should be read by every person in order that he may better enjoy, understand and appreciate life. A. C. C.

THE NOSE, THROAT AND EAR AND THEIR DISEASES.

In Original Contributions by American and European Authors. Edited by Chevalier Jackson, M.D., ScD., LL.D., F.A.C.S., Chevalier de la Légion d'Honneur; Chevalier de l'Ordre de Léopold, Professor of Bronchoscopy and Esophagoscopia in the University of Pennsylvania, etc. With 657 illustrations and 27 inserts in colors. Philadelphia and London: W. B. Saunders Company. 1929. Price, cloth \$13.00.

In a book of over 1,100 pages, Jackson and Coates have combined the writings on various ear, nose and throat subjects of seventy-four authors. To get seventy-four physicians to write coherently upon any group of subjects is in itself no small task, and it staggers the imagination to try to conceive how it was possible to assemble all this manuscript at one particular place and one specific time.

As would be expected from such a number of authors the various subjects are covered in a good, bad and indifferent manner. There is not so much conflicting opinion as one might be led to believe from the preface, for there is a conspicuous lack of positive, dogmatic statements. The operative technic is rather brief.

There seems to be a submergence of the identity of the various authors as their names are placed in an inconspicuous position at the end instead of the beginning of their subjects, and there is no author index.

Jackson's contribution is up to its usual high standard and his clear-cut illustrations and artistic drawings distinctly offset the general lack of art display in the remainder of the book.

As a convenient reference work in one volume for those who do not have access to monographs, periodicals and an assortment of textbooks, the volume is of distinct value. O. J. D.

DIAGNOSIS AND TREATMENT OF DEFORMITIES IN INFANCY AND EARLY CHILDHOOD. By M. F. Forrester-Brown, M.S., M.D. (Lond.), Surgeon, Bath, Somerset and Wilts Central Children's Orthopaedic Hospital. With a foreword by Sir Robert Jones, Bart., K.B.E., C.B., F.R.C.S. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929. Price \$4.15.

A foreword by Sir Robert Jones assures any book careful reading and thoughtful attention. This manual is entitled to both on its own merits. It makes no claim to be more than a manual to assist those interested in general practice, school welfare work, and nursing. However, it gives detailed descriptions of early deformities, sets forth in con-

cise language the nonoperative correction of such deformities, and the prevention of further disabilities. The writer clearly shows her wide experience in British and American clinics for the handling of crippled children.

The section on "Postural Errors" with its treatment of faulty posture is of unusual value, setting forth as it does the common mistakes in the exercises suggested for this condition and describing in detail proper muscle development. This is particularly opportune in the presence of the existing craze for corrective exercises, many of which, apparently rational, actually defeat their purpose by developing muscles that are already overactive.

It is refreshing to have clinical diagnosis by sense of touch and observation stressed. Too often we find ourselves slurring over these features because we know that we shall have an X-ray taken anyway.

In this booklet of 199 pages there are some eighty pages of illustrations. Many of these pages consist of several different pictures. The subject matter is therefore graphically portrayed and easily read. It is heartily recommended to the nurse, the student, the practitioner, who are the first to see many of the deformities, and also to the orthopedist who would like to refresh his mind on the non-operative handling of the deformities of early childhood. T. P. B.

THE FUEL OF LIFE. Experimental Studies in Normal and Diabetic Animals. By John James Rickard Macleod, M.B., LL.D., D.Sc., F.R.S., Professor of Physiology, University of Toronto, Canada. Louis Clark Vanuxem Foundation Lectures delivered at Princeton University, March, 1928. Princeton: Princeton University Press. Price \$2.50.

This is a very interesting summary of our present knowledge in metabolism, particularly the metabolism of carbohydrates. The lectures quite properly contain, in considerable detail, the work done in Macleod's laboratory. The book is written in a very entertaining style but should be read several times to be fully appreciated. The monograph contains a very large amount of condensed information and any one not particularly versed in the subject may require considerable mental concentration to master it.

Macleod believes that fat can be converted into carbohydrate in most forms of living matter and this thought is a sort of thread that runs through the entire book. A great many other interesting features of carbohydrate metabolism are discussed.

In support of his view that carbohydrate can be formed from fat he discusses the work of Embden, who showed that a glycogen-free liver, when perfused with blood, formed glycogen which could be derived either from carbohydrate or protein. He also discusses his own work with depancreatized dogs. He points out that in depancreatized dogs the respiratory quotient is lower than one could expect were the animal burning pure fat. He does not think that insulin enables the tissues to burn sugar but rather that it prepares sugar in some way so that the tissues can burn it.

Many other interesting topics are discussed in the book. The author reviews the evidence that there is more than one form of glucose in the circulating blood. He also discusses some of the problems relating to dihydroxyacetone.

This monograph has a very attractive appearance, is entertainingly written and should be read by every physician who is especially interested in the subject of diabetes. R. H. M.

INTERNS HANDBOOK. A Guide to Rational Drug Therapy, Clinical Procedures and Diets. By members of the faculty of The College of Medicine, Syracuse University. Under the direction of M. S. Dooley, A.B., M.D., Chairman Publication Committee. Philadelphia and London: J. B. Lippincott Company. 1929. Price \$3.00.

This is a collection of those facts which the young doctor just out of college and interning in a standard hospital most needs. The book bridges the gap between theory and practice and is replete with practical facts succinctly stated.

It contains practical advice on prescription writing; the proper handling of narcotics, alcohol, and potent drugs in a hospital; simplified metric prescribing; laboratory hints; medical procedures; surgical procedures; and other useful information. In fact, it seems inconceivable that so much can be contained in 254 pages. The book is apparently an attempt on the part of its more than 50 contributors to standardize the intern service.

One typographic error is noted on page 3, in the table of metric equivalents. Item 4 should read oz. i or fld. oz. i instead of drams i, or fld. drams i.

E. A. B.

STONE AND CALCULOUS DISEASE OF THE URINARY ORGANS. By J. Swift Joly, M.D. (Dub.), F.R.C.S. (Eng.), Surgeon to St. Peter's Hospital for Stone; Consulting Urologist to St. James' Hospital, Wandsworth. With 189 illustrations in the text and four coloured plates. St. Louis: The C. V. Mosby Company. 1929. Price \$16.00.

A monograph devoted to a subject as fascinating to the general practitioner as it is to the urologist, written by a master in this difficult branch of medicine in a style that reflects the highest scholarly attainment, and with a thoroughness that bespeaks the most profound study, research, experience and skill,—such is the sum and total of this new work on stone, a book which will doubtless maintain first place among works of this kind for a number of years to come.

To the student who is looking for a comprehensive view upon the etiology of urinary calculus; to the general practitioner who is seeking information regarding the symptoms and diagnosis of stone; to the radiologist who is desirous of adding to his skill and knowledge of the interpretation of radiograms of urinary lithiasis; to the surgeon who is constantly adding to his own experience the technic and judgment of his colleagues; and to the urologist who is improving himself by studying and comparing the researches of masters and authorities in his own line of scientific investigations, Joly's book offers most alluring material for study.

The bibliography is delightfully complete; American investigators are quoted frequently throughout the work and the author's frankness in discussing pro and con his viewpoint regarding the experimental researches of others is charming and refreshing as well as instructive.

Perhaps the most interesting of the eight chapters which comprise the volume are those on Etiology and on Renal Calculus. The former is characterized by the same thoroughness and interest that one enjoys through every other part of the book, as well as by the minuteness with which every theory regarding stone formation is dealt with; the latter chapter is so enriched by a consideration of the radiological study of renal stone, and its value so enhanced by the presentation of the treatment, that one is tempted to conclude that the author has com-

piled *all* the available information on these topics in a most amazingly attractive yet concise manner; and these chapters alone should stamp Joly's work as a most valuable and most desirable addition to our libraries.

The work is well illustrated throughout and the many tabulations of records are decidedly interesting and instructive. This book should be in the library of every surgeon, urologist, and general practitioner.

M. G.

SURGICAL PATHOLOGY. By William Boyd, M.D., M.R.C.P. Ed., Dipl. Psych., F.R.S.Can., Professor of Pathology, University of Manitoba, etc. Second edition, revised and reset. With 474 illustrations and 15 colored plates. Philadelphia and London: W. B. Saunders Company. 1929. Price \$11.00.

The author offers a very detailed discussion on surgical pathology which will prove useful to the surgeon. He gives an accurate description of how to collect pathological materials which should be of much value to one doing surgery as in most textbooks this feature is usually very limited. He carefully classifies the different types of infections and discusses the value of vaccines. The chapter on inflammation is a most valuable one; he discusses the types, changes, vascular, tissue and repair. His discussion on gangrene, healing, hemorrhage, thrombosis and embolism is carefully outlined and in detail. There are many valuable illustrations of the important malignant and benign growths, the more important ones described in detail. In the chapter on the thyroid gland he brings out some valuable information, classifying goiters, the response of the thyroid to iodine and the effect of the thyroid on the child in utero. There is a detailed discussion of the more important pathological conditions of the stomach, duodenum and intestines, with many pathological sections as well as many radiographic illustrations.

He carefully classifies and discusses the diseases of the liver, gallbladder, peritoneum, kidneys and lower urinary tract, with especially good illustrations of the important diseases. Much space is devoted to diseases of the arteries, veins, diseases of the spleen and lymphatic system, diseases and injuries of the brain and spine, injuries to the spinal cord, diseases of the bones, muscles and tendons. The beautiful radiographic illustrations are an outstanding feature of the work and most instructive to the surgeon as well as the student. He has added many new pathological illustrations and sections. Among other subjects which are considered for the first time in a surgical pathology or to which new material has been added are the treatment of septicemia, tissue cultures, precancerous lesions, carotid body tumors, tumors of the xanthoma group and pituitary tumors. This is a valuable book for the student as well as the surgeon.

A. H. D.

NEPHRITIS. Its Problems and Treatment. By T. Izod Bennett, M.D. (London), F.R.C.P., Physician with charge of outpatients Middlesex Hospital, etc. Oxford University Press, American Branch, 35 West 32nd Street, New York City. 1929. Price \$1.85.

In this small volume of ninety-four pages is contained a comprehensive review of all that is of value in the diagnosis and treatment of nephritis. It is based upon three Goulstonian Lectures delivered before the Royal College of Physicians in the spring of 1928, to which certain additions and alterations

have been made to provide a harmonious survey of this inexhaustible subject. The purpose of the book is not to discuss the reasonings by which an exact diagnosis can be arrived at in the absence of abundant signs and symptoms, but rather to give the reader an opportunity of forming a useful opinion with regard to diagnosis, prognosis and treatment when confronted with a typical case of nephritis in any of its multiple forms. The reviewer has read and reread the book and is so impressed with the method of presentation, the clear and sound reasoning and the conclusions reached, that he cannot too highly recommend it, not only to experts but to all practitioners of medicine. It is printed in legible type, on paper free of gloss, has an adequate index and is neatly bound in cloth.

A. R.

ARTIFICIAL SUNLIGHT AND ITS THERAPEUTIC USES.

By Francis Howard Humphris, M.D. (Brux.), F.R.C.P. (Edin.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), L.M. (Rot., Dublin), D.M.R. & E. (Cantab.), Hon. Consulting X-Ray Physician to the American Hospital in London, etc. Fifth edition. Oxford University Press, American Branch, 35 West 32nd Street, New York City. Price \$3.25.

The fact that this volume is now in its fifth edition attests its widespread use, particularly in England. The author makes a significant statement in his preface which bears repeating in this review. He says: "Perhaps the chief evil is the almost indiscriminate use of artificial sunlight by those who are insufficiently acquainted with its use, properties and dangers. This is one, and perhaps the chief, of the errors of commission; one of the chief errors of omission is to regard artificial sunlight chiefly as a curative agent in the treatment of disease, when perhaps its most important field of greatest usefulness is in the treatment of health, which means the keeping of health and the prevention of disease."

The subject matter is well written and the chapter on apparatus well illustrated. Although he writes in a convincing fashion one who has intimate knowledge of this type of work in America concludes after reading the book that the English have adopted treatment by radiation with a more open hand than we have in America.

In a general way one may accept the views which the author has expressed as authoritative for Dr. Humphris has had a wide experience in the field of radiation in England. The reviewer, however, feels that his numerous and laudatory references to certain authors in no way strengthens his text. The chapter on contraindications is of particular value to the practitioner at this time because we have heard much,—too much,—of the indications and not enough of the contraindications of ultraviolet irradiation. This chapter will probably be more eagerly read by the profession than the descriptions on treatment and technic.

The glossary forms a useful and instructive adjunct to the volume. It is a readable, interesting and enlightening book, and will appeal to the practitioner who already has accepted radiation as an approved means of treatment.

F. H. E.

MEDICAL RECORD VISITING LIST OR PHYSICIAN'S DIARY. For 1930. Revised. New York: William Wood & Company. Price \$2.00.

The 1930 edition of this excellent visiting list is in all respects complete for the accurate detailed record of sixty patients per week. It contains the special memoranda tables and charts useful to the busy practitioner.

UROLOGICAL ROENTGENOLOGY. A Roentgen Atlas of the Genito-Urinary Tract with Case Histories and an Outline of Urology in its Relations to Roentgenology. By Hugh H. Young, M.D., Clinical Professor of Urology, Johns Hopkins University, etc., and Charles A. Waters, M.D., Instructor in Clinical Roentgenology, Johns Hopkins University, etc. Assisted by Mary A. Goldthwaite. Illustrations by William P. Didusch. New York: Paul B. Hoeber, Inc.

The authors first discuss very carefully the important relationship between roentgenology and urology and make it perfectly plain that these two branches of medicine are absolutely interdependent. All the various appliances for combined X-ray and urological study are pictured and thoroughly described. The technic of cystoscopic study of the patient is considered in detail.

The history of pyelography, with the various media that have been used, is taken up chronologically and the advantages of different technical procedures are beautifully considered. Perirenal insufflation receives a fair discussion, this type of technic being illustrated by several excellent roentgenograms taken following air injections. Renal and ureteral fluoroscopy are discussed at length, great stress being laid upon the importance of the fluoroscope while removing multiple renal calculi. The authors also discuss the importance of X-ray films of the calculous kidney taken during the surgical removal of stones. These two methods of accurate study of the kidney on the operating table are definitely subscribed to by the reviewer. The remainder of this chapter is devoted to a most pleasing description of ureterography, cystography, diverticulography, vesiculography, ampulography, vasography. Very beautiful illustrations show the injection of the seminal vesicles and vasa with thorium nitrate. A short description of urethrogropy is added.

The descriptions of the topography, anatomy and physiology of the urinary tract are very strikingly reinforced with molds of various types of renal pelvis and ureters, anatomical drawings of the relationship of the urinary organs and pyelograms representative of the innumerable conditions.

There is a definite description of the many types of renal anomalies, these aberrations being shown by picture, pyelograms, ureterograms and cystograms. This chapter is extremely well done. Obstructive conditions of the urinary tract as usual make the most striking illustrations and the authors give a beautifully illustrated chapter on renal infections, tuberculous and nontuberculous.

The chapter on urinary lithiasis is very extensive and depicts the different types of stone disease of the urinary tract showing the points of differential diagnosis and the great value of accurate clinical study.

Chapter eight is devoted to a consideration of the different tumors and the illustrations leave no doubt as to the value of thorough familiarity with this type of diagnostic urology.

A short chapter deals with the value of combined study in traumatic injuries and foreign bodies of the urinary tract and, finally, chapter ten considers the disturbances of the urinary tract resulting from disordered conditions of the central nervous system.

The book is most excellent, surely the best illustrated work on this subject that I have ever seen, and truly commends itself as highly essential to the library of those interested in urinary tract problems. It is indeed a great pleasure to write a brief criticism of the book.

J. R. C.

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